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PHLEBOTOMUS (PAPPATASI) OR SANDFLY) FEVER

A DISEASE OF MILITARY IMPORTANCE

SUMMARY OF EXISTING KNOWLEDGE AND PRELIMINARY
REPORT OF ORIGINAL INVESTIGATIONS

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Phlebotomus fever, also commonly called pappatasi or sandfly fever, is a specific febrile disease of virus etiology which is of considerable military importance because of its occurrence in many parts of the world where troops are stationed. The adult native populations are for the most part immune, but when troops or other people from areas where the disease is not prevalent move into endemic zones they succumb in large numbers. While the disease is self limited and there are no fatalities, its military importance lies in the fact that it can incapacitate large numbers of men for periods of seven to fourteen days or longer at a time when their services may be needed most. The clinical picture of Phlebotomus fever resembles that of influenza but without the signs of acute inflammation of the respiratory tract which commonly accompany the latter disease. It is characterized by fever ranging from 100 to 105 F., severe headache, pain in the eyes, photophobia, subjective stiffness of the neck, pain in the back, muscles, bones and joints, associated on occasions with anorexia, nausea and vomiting, abdominal distress, and constipation or diarrhea. The fever usually lasts only about three days, although it may be shorter or longer, but convalescence is sometimes slow, weakness, dizziness, diarrhea and depression continuing for another ten days or longer, depending on the individual and the climate. In 1908 an Austrian

These investigations were carried out under the Commission of Neurotropic Virus Diseases, Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, Preventive Medicine Division, Office of the Surgeon General, United States Army. Part of the work was carried out in the Commission's Laboratory in the Middle East and the remainder at the Children's Hospital Research Foundation and the Longview State Hospital, Cincinnati.

The number of American and British officers and men who assisted us in this work is too great to allow individual mention here. In particular, however, we wish to include Col. C. I. Sams, M. C., Col. D. W. Billick, M. C., Col. H. C. Van Vlack, M. C., Lieut. Col. B. L. Keyes, M. C., Lieut. Col. F. Sewell, M. C., Lieut. Col. T. G. Ward, M. C., and Major C. S. Byron, M. C., of the U. S. Army Forces in the Middle East; Lieut. Col. A. A. Carabelli, M. C., of the Persian Gulf Service Command, and Col. D. Franklin, M. C., Lieutenant Colonel Norton and Major S. C. Wagoner, M. C., of the Seventh Army.

We are also indebted to Brig. Gen. G. X. Cheves, U. S. Army, for granting permission for us to carry out experiments designed to test the efficiency of insect repellents on American troops.

The following British officers also assisted us: Major C. R. Amies, R. A. M. C., Lieut. Col. J. B. Scott, R. A. M. C., and Lieutenant Colonel Elliot and Major E. D. Cooper of the South African Medical Corps.

military commission consisting of Doerr, Franz and Taussig¹ reproduced the disease in human beings by inoculation of blood obtained from patients on the first day of the fever and established the fact that the agent was filtrable and that the midges known as Phlebotomus papatasi² were vectors of the disease.

Phlebotomus fever appears to persist chiefly, although not exclusively, in the lowlands of those subtropical and tropical countries in which there are long periods of hot, dry weather. The disease is distinctly seasonal, the highest incidence occurring between the months of April and October in different parts of the world, depending on the prevailing temperatures and the periods when the rainy season ceases and reappears. Its widespread geographic distribution, particularly in those parts of Europe, Africa and Asia which lie in the belt between 20 and 45 degrees north latitude, has become apparent from reports dating from the beginning of the nineteenth century³ to the present day, in which the disease has been described under a variety of names including three day fever, Mediterranean dengue, summer influenza, summer fever, hundskrankheit, soldaten fieber, acclimatization fever, endemic or climatic gastroenteritis and chitral fever. The disease is definitely known to occur in Italy as far north as the Po valley, Sicily, along the Adriatic coast of Yugoslavia as far north as the Istrian peninsula, Greece, Malta, Crete, Cyprus, Egypt, Palestine, Syria, Iraq, Persia (Iran), Crimea and the Transcaucasian region, and the northwest and central provinces of India. There are also reports which would suggest that this disease may occur in China as far north as Peiping and Tientsin and as far south as Hongkong, in Burma along the coast of the Bay of Bengal, in Ceylon, in the Poona region of India, in Aden and along the adjacent Red Sea coast of Arabia, the Anglo-Egyptian Sudan, along the Mediterranean coast of Africa—particularly the eastern portion, Corsica, the Mediterranean coast of France, Gibraltar, and along the Atlantic coast of Portugal.⁴ Reports of a similar disease in countries lying just north or south of the equator have come from Kenya⁵ and the Tanganyika Territory in Africa⁶ and from the region of Bolivar in South America.⁷ The disease is not known to occur in the

1 Doerr, R.; Franz, K., and Taussig, S. Das Pappataciefieber, Leipzig, Franz Deuticke, 1909.

2 The term "papatasi" is used to designate the vector in accord with Scopoli's original spelling, while "pappatasi" was the name given to the disease by the Austrian commission because it was the popular name for these insects.

3 Birt, C. Phlebotomus Fever and Dengue, Tr. Soc. Trop. Med. & Hyg. 6: 243, 1913.

4 Megaw, J. W. D., and Gupta, J. C. The Geographical Distribution of Some of the Diseases of India, Indian M. Gaz. 62: 299, 1927. Yang, F. H. Zur Kenntnis der Phlebotomen Arten in China und zur Aetologie des Phlebotomenfiebers, Far East A. Trop. Med., Tr. Ninth Cong. 1: 495, 1934. Birt.²

5 Jewell, N. P., and Kauntze, W. H. A Handbook of Tropical Fevers, London, Bailliere, Tindall & Cox, 1932.

6 Manteufel: Ein bisher an der Deutsch Ostafrikanischen Küste nicht bekanntes Sommerfieber, Arch. f. Schiffs- u. Tropen Hyg. 16: 619, 1912.

7 Cogollo Duque, J.: Bol. Ofic. san. pan. 14: 1143, 1935, quoted from Van Rooyen, C. E., and Rhodes, A. J.: Virus Diseases of Man, Oxford Medical Publications, 1940, pp. 505-515.

United States. Phlebotomus fever was one of the diseases investigated by a commission of which we were the members, which went to North Africa early in 1943. Clinical and laboratory studies were carried out on human volunteers from the ranks of the American armed forces in the commission's laboratory in the Middle East, and subsequently on larger numbers of human beings in the United States.⁸ Two strains of virus were isolated from the blood of patients—one strain from the Middle East and the other from Sicily. More than 100 cases of the experimental disease produced in human beings during the course of various experiments and tests have now been observed. Our purpose in the present communication is to report on the present status of our knowledge concerning the etiology, transmission, epidemiology, clinical manifestations, diagnosis, immunity and prophylaxis of Phlebotomus fever.

PROPERTIES OF THE ETIOLOGIC AGENT

The original studies of Doerr and his co-workers⁹ (later confirmed by others¹⁰) established that the serum obtained during the first twenty-four hours of the fever, but not at forty hours or later, contained an agent which could reproduce the disease in human beings, even after filtration through filters which prevented the passage of ordinary bacteria. Moshkovsky and his associates¹¹ demonstrated that the virus may be present in the blood one to two days before the onset of fever. Although many unsuccessful attempts had been made to transmit the disease to the usual laboratory animals, such studies were not extensive and on occasion were equivocal.

Our own investigations yielded the following information:

1. Serum obtained from spontaneous cases occurring in troops in the Middle East and Sicily regularly reproduced the disease in human volunteers.
2. In the experimentally reproduced disease the virus was found in the blood at least twenty-four hours before the onset of fever and during the first twenty-four hours of the fever but was no longer demonstrable forty-eight hours after onset.
3. The virus has been passaged in series seven times by inoculation of serum from human being to human being without any apparent change in its properties.
4. By means of the intracutaneous or intravenous routes of inoculation, approximately 95 per cent of over 100 human adults were found to be susceptible regardless of sex or color.
5. Doses of virus (i. e. infected serum) which almost regularly produced the disease when inoculated intracutaneously or intravenously failed to produce the disease in 50 to 75 per cent of individuals in simultaneous tests when the inoculation was given subcutaneously or intramuscularly.

8. The studies in the United States also formed part of a fever therapy program for patients with dementia paralytica at the Longview State Hospital, Cincinnati. The cooperation of Dr. Douglas Goldman, medical director, and Dr. E. A. Baber, superintendent, of the institution made this work possible.

9. Doerr, R. and Russ, V. K.: Weitere Untersuchungen über das Pappataci-Fieber, Arch. f. Schiffh. u. Tropen Hyg. 13: 693, 1909. Doerr, Franz and Taussig.

10. Burt, C.: Phlebotomus Fever in Malta and Crete, J. Roy. Army Med. Corps 14: 236, 1910, 15: 140, 1910. Tedeschi, A. and Napolitano, M.: Experimentelle Untersuchungen über die Ätiologie des "Sommerfiebers," Zentralbl. f. Bakt. (Abt. 1) 57: 208, 1911. Shortt, H. E.; Poole, L. T., and Stephens, E. D.: Sandfly Fever on the Indian Frontier: A Preliminary Note on Some Laboratory Investigations, J. Roy. Army Med. Corps 63: 361, 1934; 64: 17, 1935; Note on Some Experiments with Sandfly Fever Blood and Serum, Indian J. M. Research 23: 279, 1935.

11. Meshkovsky, S. D., and others: Pappataci Fever, Med. Parasitol., Moscow 5: 823, 1936.

6. The largest amount of virus per cubic centimeter of serum obtained at the onset of fever was about 1,000 infective doses, but there is reason to believe that it may sometimes be less.

7. No virus was demonstrated in cerebrospinal fluid obtained on the first and second days of the experimentally reproduced disease even when large amounts (2 cc. intracutaneously and 15 cc. intravenously) of the cerebrospinal fluid were inoculated.

8. The virus was preserved for at least six months in the frozen state by storage at the low temperature produced by solid carbon dioxide or in the lyophilized state, stored in an ordinary refrigerator. Longer periods have not yet been tested.

9. Gradocol membrane filtration tests revealed that the virus is of small size. It passed with ease through all membranes having an average pore diameter of 200 millimicrons or more.¹² Passage through the 100 millimicron average pore diameter membrane is probable but questionable, since the filtrate did not reproduce the disease, although 2 of the 4 human subjects used in the test were immune to subsequent inoculation of active virus. Neither disease nor immunity followed the inoculation of filtrates from the 75 or 50 millimicron average pore diameter membranes. Applying Elford's formula to these data, one may say that the virus is certainly not larger than 40 to 60 millimicrons and quite probably not larger than 25 to 37 millimicrons. However, in view of the fact that the amount of virus in the serum used for filtration was only about 1,000 minimum lethal doses per cubic centimeter, it is not improbable that the true size of the Phlebotomus fever virus may be even smaller and perhaps fall in the same range of magnitude as that of yellow fever, which is 22 millimicrons.

10. The pathogenicity of the virus was tested by inoculation of serum or blood of proved infectivity for human beings by the intracerebral, intracutaneous, subcutaneous, intratesticular, intranasal or intraperitoneal routes in the following lower animals:

Young baboons (*Papio hamadryas*) and monkeys of the following species: grivet (*Cercopithecus griseo-iridis*), vervet (*Cercopithecus aethiops centralis*), red African hussar (*Cercopithecus [Erythrocebus] patas*), *Macaca radiata* and *Macaca mulatta* (rhesus). The rodents included young white mice, wild gray mice, Syrian hamsters, Egyptian desert rats (jerboas), rabbits, guinea pigs and cotton rats.

No evidence of pathogenicity was obtained. The virus could not be demonstrated in the serum of 3 rhesus monkeys three and four days after inoculation, although the human beings in whom the tests were made developed transitory fever associated with serum sickness.

11. No evidence was found that the virus produced specific plaques on the chorioallantoic membrane of chick embryos,¹³ nor did it appear that the embryos

12. Dr. Johannes Bauer of the International Health Division of the Rockefeller Foundation supplied most of the gradocol membranes used in these tests.

13. Shortt, H. E.; Rao, R. S., and Swaminath, C. S.: Cultivation of the Viruses of Sandfly Fever and Dengue Fever on the Chorioallantoic Membrane of the Chick Embryo, Indian J. M. Research 23: 163, 1935. Shortt, H. E.; Pandit, C. G., and Rao, R. S.: The Virus of Sandfly Fever in Culture and Certain of Its Properties, ibid. 26: 229, 1937. Demina, N. A., and Levitan-Kaya, P. B.: Studies on Pappataci Fever, X. Attempts to Cultivate the Virus on the Chorioallantoic Membrane of Chick Embryos, Med. Parasitol., Moscow 10: 272, 1940; abstr. Trop. Dis. Bull. 40: 1, 1943. Demina, N. A.: Studies on Pappataci Fever, XI. Further Investigations on the Culture, Med. Parasitol., Moscow 10: 271, 1941; abstr. Trop. Dis. Bull. 40: 305, 1943.

were adversely affected when the inoculations were made into the embryo, allantois or yolk sac. Subinoculation of the third and fourth passage chick embryo cultures (propagated by the same technic used in growing yellow fever virus for vaccine production) into human beings did not reproduce the disease.

CAPACITY OF VARIOUS BLOODSUCKING INSECTS TO TRANSMIT THE DISEASE

The capacity of *Phlebotomus papatasi* caught in endemic zones, with or without previous known exposure to an infected individual, to transmit the disease to susceptible human beings was established by Doerr⁹ and extensively confirmed by others.¹⁴ The evidence is suggestive, although not entirely satisfactory, that approximately one week is required for the virus to develop in these insects before they are capable of transmitting the disease after an infectious blood meal. The bedbug is the only other bloodsucking insect that had been tested (Doerr¹) and it did not transmit the disease. Although other species of *Phlebotomus*, namely *pernicius*, *minutus*, *causasicus* and others, have been found in areas where the disease has occurred, there is as yet no experimental proof as to whether or not they may be vectors of *Phlebotomus* fever. The work of this commission yielded the following results:

1. *Phlebotomus papatasi* caught in a region of Palestine where the disease had not occurred recently failed to produce the disease in 8 susceptible American volunteers who were bitten by large numbers of the insects.

2. The laboratory-reared offspring of these flies transmitted the infection from one group of human volunteers inoculated with serum virus to other susceptible volunteers, although not all who were bitten developed the disease.

3. A susceptible individual may be bitten many times by many flies which have previously fed on infected human beings at the proper time and yet not develop the disease. The susceptibility to the virus was proved when the volunteer developed the typical disease following inoculation with infectious serum.

4. Carefully controlled tests with mosquitoes (*Culex pipiens* and *Aedes aegypti*) and human fleas (*Pulex irritans*) showed that they were unable to transmit the disease. Some of these data are shown in figure 2. The tests made with *Aedes aegypti* were more extensive than any of the others and were carried out both in the Middle East and in the United States with both the Middle East and Sicilian strains of the virus; the negative results are of especial interest, since this mosquito is established as a vector of dengue.

CHARACTERISTICS OF THE VECTOR, PHLEBOTOMUS PAPATASI

The term "sandfly," which is popularly used for species of the genus *Phlebotomus*, is unfortunate because in North America it is also applied to totally different minute, biting insects, which are also known as "punkies" or "no-see-ums" and belong to the genus *Culicoides*.

Phlebotomus papatasi is a yellowish, two winged, hairy midge whose body is about 2 to 3 mm. long and somewhat less than 1 mm. thick (fig. 1). Only the female of the species bites and does so during the night and early hours of the morning. The body of the female appears distended and red for some hours after a blood meal, and black for several days thereafter.

While the bite itself is usually painful, there is no reaction to it until and unless the person has developed an allergy to the secretions deposited during the bite. In persons not previously bitten by these insects there is neither pain nor local irritation after the initial stab. The bitten site may be marked by a pinpoint, reddish or hemorrhage spot or may be inconspicuous. However, about one to two weeks later (without exposure to other bites during the period) inflamed papules usually appear at practically all the sites of the original bites. These papules are 2 to 3 mm. in diameter, raised about 0.5 mm., pink or red, and not infrequently vesicular. Their appearance is not necessarily associated with itching, although moderate to severe itching is usually present later. These lesions are prominent for four

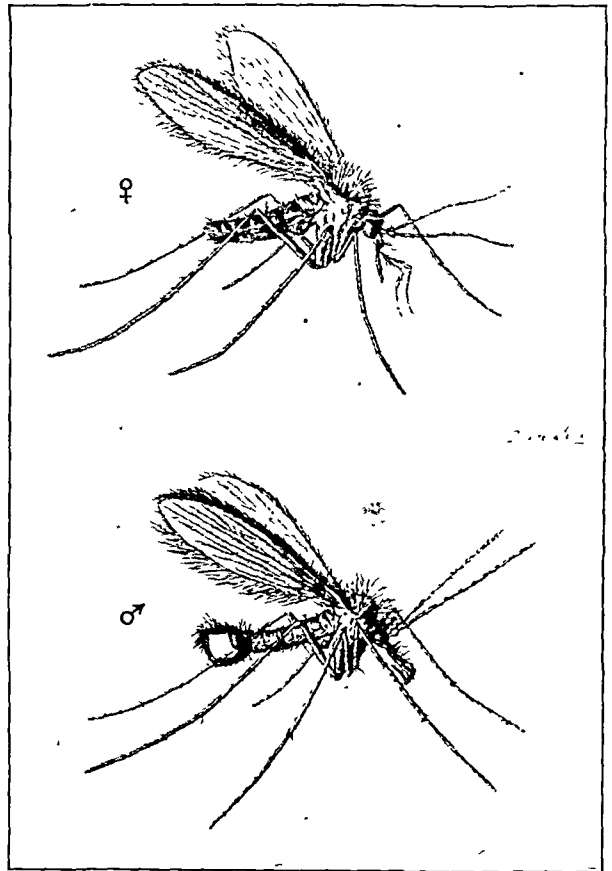


Fig. 1.—*Phlebotomus papatasi*.

to five days and then slowly disappear. Once sensitization is established such papules appear earlier after subsequent bites, and in certain hypersensitive persons there is an almost immediate urticarial reaction which may produce pronounced and extensive swelling of the eyelids or lips when these sites are bitten. Some persons, however, do not become sensitive.

These insects are most prevalent near the ground level, and only small numbers of them are encountered in upper stories. Their flight is characteristically in short, jerky hops along the walls and ceiling. They rarely bite people in motion or when there is a strong breeze. Because of their small size and capacity to penetrate small apertures, the ordinary screen and mosquito bar fail to keep them out. There is reason to believe that their range of flight is very short and that insects found in human habitations probably originate

14. Whittingham, H. E.: The Etiology of *Phlebotomus* Fever, *J. State Med.* 32: 461, 1924. Birt.¹⁰ Shortt, Poole and Stephens.¹⁰

from breeding sites within a radius of about 50 yards;¹⁵ there is some question, however, as to whether there may be exceptions to this rule. *Phlebotomus papatasi* is known to breed in rubble, dugouts, cracks in the earth, walls and embankments, garden soil and other dark protected spots containing moist organic matter. The flies are not, however, aquatic like mosquitoes, and too much moisture drowns the larvae. It has been observed that material for a possible breeding place is too damp if it adheres to the fingers and does not fall off when it is gently rubbed between them. It is apparent, therefore, that neither the sands of the desert nor the excessively moist areas of the tropics can be expected to provide suitable breeding grounds. The disturbance of ground incident to the establishment of

Phlebotomus papatasi. Secondary cases do not arise by contact in the absence of the vector. Although the disease is almost never seen among the native adolescent or adult population of endemic regions, it is obvious that practically all of them are attacked in infancy and early childhood. A good Italian description of the disease in infants and children¹⁶ (recognized as such during an epidemic among adults) indicates that the disease differs in only minor details in the younger age groups, the incidence of diarrhea being especially high among them. While it is thus clear how new susceptible subjects become available each year for the perpetuation of the virus, it is not clear what the reservoir of the virus is during the late autumn and winter months when the *Phlebotomus* flies are absent. It is

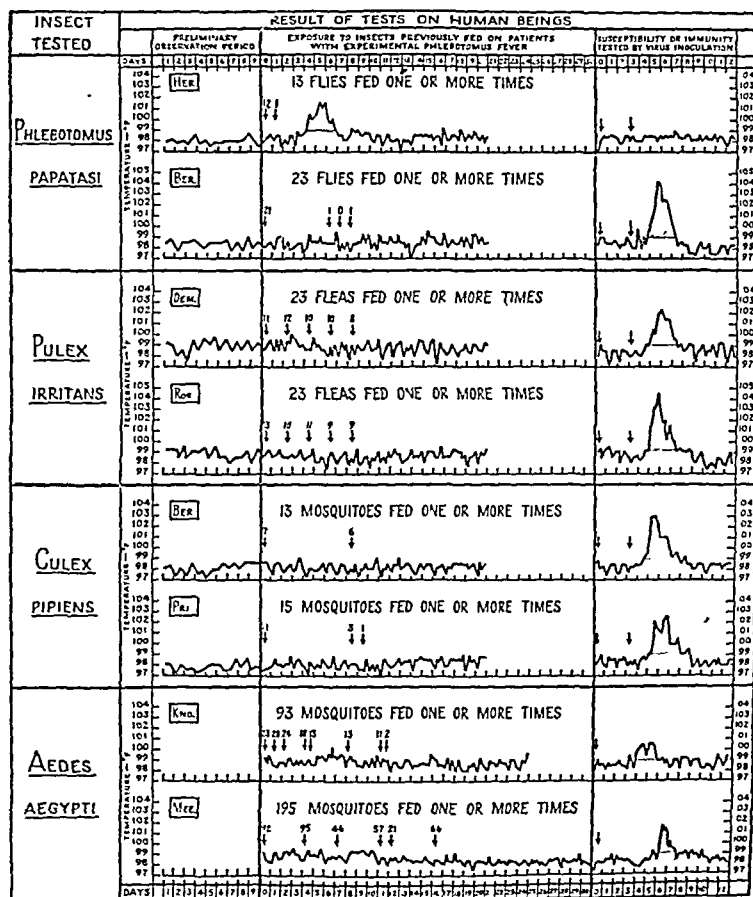


Fig. 2—Capacity of various blood sucking insects to transmit *Phlebotomus* fever.

certain military installations, such as occurs in the excavation of tent floors, the building of parapets and the erection of new buildings, can provide good potential breeding grounds. In warm weather approximately four and one-half to six weeks is required for the eggs to develop into adults. The life of the adult is believed to be relatively short in hot weather. In the laboratory it is not over two to three weeks.

CYCLE OF INFECTION AND RESERVOIR OF VIRUS

According to our present knowledge the disease is maintained in nature by passage from man to man through the medium of the intermediate host and vector.

known that the virus quickly disappears from the blood of human beings, and there is as yet no evidence that it may be carried by lower animals for either long or short periods of time. Doerr⁹ first suggested the possibility that the virus may be transmitted from one generation of infected *Phlebotomus papatasi* to another. Whittingham¹⁴ was the first to demonstrate that *Phlebotomus papatasi* reared in the laboratory in a country where the disease is unknown (England) was capable of producing the disease in human volunteers without previously feeding on infected human beings. He believed, however, that the infection was not transmitted through the ova, but rather that the larvae acquired it by ingesting the debris or dead remains of their "parents." Moshkovsky and his collaborators,¹⁷ starting with the ova from thousands of phlebotomi which had been fed on patients with the disease, proved in a series of experiments that certain of the adults raised from ova hatched away from their "parents" were capable of producing the typical disease in human volunteers. The nature of the disease they thus produced was further proved by serial passage of the virus in other human beings.

This question was investigated by this commission as follows:

(a) *Phlebotomus papatasi* larvae were allowed to ingest lyophilized virus (human serum), and the resulting adults were tested on human volunteers with negative results.

(b) *Phlebotomus papatasi* hatched out in the laboratory from ova derived from parent females of proved infectious capacity as late as eight to ten days after the infectious blood meal failed to produce the disease in human volunteers.

While these experiments were not extensive, they indicated that the virus is not passed on from generation to generation in all infected flies. Nevertheless, even if such an event should occur only occasionally, as suggested by Whittingham's¹⁴ and Moshkovsky's¹⁷ experiments, it may be enough to carry the virus over from one season to another. It is well to recognize, however, that this question cannot be regarded as having been settled.

(To be continued)

15. Marett, P. J.: The Bionomics of the Maltese Phlebotomus, *Brit. M. J.* 2:172, 1915. Whittingham, H. E., and Rosh, A. F.: The Life History and Bionomics of *Phlebotomus papatasi*, *ibid.* 2:1144, 1923. Yeung, T. C., McClellan, A. F., and Brindley, G. R.: Sandflies and Sandfly Fever in the Peshawar District, *Indian J. Med. Research* 13:561, 1925-1926.

16. Peselle, B.: Osservazioni cliniche su un'epidemia di febbre da papatasi, *Pediatrics* 41:41, 1936.
17. Moshkovsky, S. D., and others: Pappataci Fever: VIII On the Presence of the Virus of Pappataci Fever in Phlebotomus Bionomics and on the Infected Females, *Med. Parasitol. Moscow* 8:222, 1937.

STUDIES ON THE ACTION OF
PENICILLINI. THE RAPIDITY OF ITS THERAPEUTIC EFFECT
ON GONOCOCCIC URETHRITIS

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Although reports of the efficacy of penicillin in the treatment of gonorrhea¹ began to appear soon after the drug became available for clinical trial, not one of them has sufficiently emphasized the rapidity of its curative action. This point is brought out in the present study, which was undertaken as a part of an investigation into the mode of action of penicillin. Since infections of the male urethra lend themselves readily to bacteriologic and cytologic observations, gonococcic urethritis in the male is peculiarly suited to the study of the mode of action of a chemotherapeutic agent.

METHODS

The first 7 patients were hospitalized for treatment. Smears and cultures of urethral exudate were made on admission and before the first injection of penicillin.² Smears and cultures were made in duplicate. One of the smears was stained by Gram's method and examined at once, the other saved for later examination by special staining methods.

After the first 7 cases had demonstrated the rapidity of its action, we began to administer penicillin to ambulatory patients in the outpatient clinic, where they were kept under supervision during the period of treatment and observation. This practice proved to be equally successful in all particulars.

All patients, whether treated as inpatients or as outpatients, were examined by smear and culture at frequent intervals—every hour or two in most instances. Follow-up examinations were begun the following morning.

CULTURES

After the urethral orifice had been cleansed with 1:1,000 mercury bichloride and dried with sterile gauze, a drop of pus was accumulated by stripping the urethra and was taken up with a sterile cotton swab, small and tightly wound to prevent too much absorption. The swab was streaked at once across the middle of two agar plates which had been brought to the bedside or examining table. The inoculum on the second plate was spread out at once with the same swab, but the first plate was carried to the laboratory and spread with a sterile platinum loop. This precaution was taken in the interest of adequate separation of colonies and

minimal contamination and was justified by occasional differences between the two cultures.

The medium employed was a meat-digest agar containing phosphate buffer and 1 per cent glucose. Defibrinated rabbit's blood was added at the time the plates were poured.

The plates were incubated in an atmosphere of carbon dioxide provided by a lighted candle in one of the metal cylinders customarily used for the sterilization and storage of Petri-dishes.

After incubation overnight, colonies of gonococci were usually plainly visible, but the plates were returned to the incubator for another day and examined again. The bacteriologic diagnosis was based on morphology, staining reaction and sugar fermentation.

CLINICAL DATA

Twenty-one patients were treated in this study.³ They varied in age from 21 to 49 years, with an average age of 30.3 years. Eight of the patients had had earlier infections. As they were selected to include early untreated initial attacks and chronic stubborn infections, the duration of the present disease varied from five days to four months; in 4 cases it was three months or longer. Three of the patients had received no treatment. Their infections were 5, 7 and 8 days old, respectively. All the other patients had been treated with one or another of the sulfonamide drugs, mostly sulfathiazole. Some of the obstinate cases had received a variety of sulfonamide preparations. Additional therapy in some cases included local instillations of silver preparations or potassium permanganate and artificially induced fever. Neither the duration of the infection nor the kind and duration of previous treatment seemed to make any difference in the response to penicillin.

Complications included acute prostatitis (case 5) and 2 cases of acute prostatitis and epididymitis (one of them, case 1) and 1 case of mild acute arthritis.

METHOD OF TREATMENT

Penicillin was administered by injection of 1 or 2 cc. quantities of aqueous solution into the gluteal muscles. The water used for its solution was sterile, pyrogen free water obtained from the operating room. The total dosage varied from 50,000 to 100,000 Oxford units. The size and spacing of the individual injections varied considerably. Table 1 gives some examples of this variation.

No symptoms or signs of toxic reactions were manifested in any of the patients.

RESULTS

With one exception, every infection was brought to an abrupt termination by the intramuscular administration of penicillin. Within two or three hours after the initiation of treatment and before the course of injections was complete, the urethral exudate underwent a striking change in character and quantity. It became paler, less viscous in consistency and much reduced in quantity. By the 5th or 6th hour it had practically disappeared. Stripping the urethra produced a small drop of clear watery secretion. The following morning no discharge was apparent, and none could be produced by stripping the urethra.

Coincident with the reduction and disappearance of these signs of infection came relief from any subjective symptoms such as local tenderness and pain on urina-

From the Departments of Medicine and Surgery and the A. B. Kuppenheimer Foundation of the University of Chicago.

1. Herrell, W. E.; Cook, E. N., and Thompson, L.: Use of Penicillin in Sulfonamide Resistant Gonorrheal Infections, *J. A. M. A.* 122: 289-292 (May 29) 1943. Turner, F. B., and Sternberg, F. G.: Management of the Venereal Disease in the Army, *ibid.* 124: 133-137 (Jan. 15) 1944. Dawson, M. H., and Hobby, G. L.: The Clinical Use of Penicillin: Observations in One Hundred Cases, *ibid.* 124: 611-622 (March 4) 1944. Herrell, W. E.: The Clinical Use of Penicillin: An Antibacterial Agent of Biologic Origin, *ibid.* 124: 622-627 (March 4) 1944. Bloomfield, A. L.; Rantz, L. A., and Kirby, M. M.: The Clinical Use of Penicillin, *ibid.* 124: 627-633 (March 4) 1944. Mahoney, J. F.; Ferguson, C.; Buchholtz, M., and Van Slyke, C. J.: The Use of Penicillin Sodium in the Treatment of Sulfonamide Resistant Gonorrhea in Men: A Preliminary Report, *Am. J. Syph., Gonorr. & Ven. Dis.* 27: 525-528 (Sept.) 1943.

2. The penicillin was provided by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for experimental investigations recommended by the Committee on Chemotherapeutics and Other Agents of the National Research Council.

3. Drs. Russell D. Herrold, Frank M. Phifer and Harry C. Rolnick cooperated by referring some of these patients to the authors.

tion. In the 2 cases complicated by epididymitis, the pain and local tenderness disappeared within twenty-four hours, and the swelling subsided considerably in that time and disappeared altogether within one week.

The single exception noted was an especially severe acute hemorrhagic urethritis, which was scheduled to receive a larger course of treatment but in which by error only two doses of penicillin, a total of 60,000 units, was administered. The urethral discharge lessened in amount but never completely disappeared and increased again the next day. It responded, however, to a second course of penicillin (100,000 units) exactly like the other cases.

Cultures.—The time of disappearance of gonococci from the smears and cultures is shown in table 1, which contains illustrative examples of different doses and

morphologic changes in appearance of both the leukocytes and the gonococci.

During the second and third hours after the beginning of treatment many of the leukocytes appeared swollen and filled with large vacuoles and their nuclei denser and more deeply stained. A large proportion of the gonococci at this time were swollen, irregular in shape, not uniformly stained, and surrounded by clear zones. These changes can be seen in the photomicrographs. Their significance is being investigated.

SEPARATION OF THE LOCAL AND SYSTEMIC ACTION OF PENICILLIN

Our interest in the mode of action of penicillin led us to question whether its therapeutic effect resulted from the penicillin brought to the tissues by the blood

TABLE 1—Rate of Disappearance of Gonococci from the Anterior Urethra During Treatment with Penicillin Administered by Intramuscular Injection

Time in Hours	Patients Allowed to Void Urine at Will											
	Case 1			Case 2			Case 3			Case 4		
	Units	Smear	Culture	Units	Smear	Culture	Units	Smear	Culture	Units	Smear	Culture
0	15,000	++++	+++	10,000	++++	++++	10,000	++++	++++	25,000	++++	++++
1	15,000	—	+	10,000	++++	++++	10,000	+++	+++	25,000	+	++++
2	15,000	—	—	10,000	+++	+++	10,000	++	+	—	—	+++
3	15,000	—	—	—	—	—	10,000	—	—	—	—	—
4	15,000	—	—	10,000	—	—	10,000	—	—	—	—	—
5	15,000	—	—	10,000	—	—	—	—	—	—	—	—
6	15,000	—	—	—	—	—	—	—	—	—	—	—
7	15,000	—	—	—	—	—	—	—	—	—	—	—
8	15,000	—	—	—	—	—	—	—	—	—	—	—
Next day	—	—	—	—	—	—	—	—	—	—	—	—

In the tables, units = number of Oxford units of penicillin injected intramuscularly. Time of first injection is designated zero hour. Smears: Number of gonococci per high power field, ++++ = more than 50, +++ = 25-50, ++ = 10-25, + = 1-10, ± = occasional, — = none found after careful search. Cultures: ++++ = confluent growth of gonococci, +++ = more than 100 colonies, ++ = 10-100 colonies, + = less than 10 colonies, — = no colonies of gonococci.

TABLE 2—Rate of Disappearance of Gonococci from the Anterior Urethra During Treatment with Penicillin Administered by Intramuscular Injection

Time in Hours	Urine Held During Drug Administration								
	Case 5			Case 6			Case 7		
	Units	Smear	Culture	Units	Smear	Culture	Units	Smear	Culture
0	30,000	++++	++++	30,000	++	++++	25,000	++	++++
1	—	++++	++++	—	—	—	—	+	++
2	—	++	++	30,000	±	++	25,000	—	+
3	—	+	++	—	—	—	—	—	—
4	30,000	—	+	—	—	—	25,000	—	—
5	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	25,000	—	—
7	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—
Next day	—	—	—	—	—	—	—	—	—

spacing of injections. The beginning of treatment is designated in each case as zero hour, and the times of subsequent procedures are given in terms of hours thereafter. The table also presents the results of the examination of smears and cultures made just before each injection of penicillin. The numbers of gonococci found in the smears and the number of gonococcus colonies developing in each culture are indicated by plus marks.

As shown by the results presented in table 2, the viable gonococci present in the urethra diminished rapidly and disappeared altogether in a very few hours. In fact, the interval between the onset of treatment and the first negative culture in all 15 cases averaged 3.7 hours, and the average length of time from the beginning of treatment to the first negative smear was 3.4 hours.

Cytologic Findings.—Examination of the smears which were made at the time of each culture confirmed the results of the latter and revealed some interesting

stream (systemic effect) or from the local gonococcal action of the penicillin secreted in the urine and passed over the urethral mucosa during each micturition. As the 15 patients in the first series (represented by cases 1 to 4) had been allowed to void their urine at will, it was necessary to treat two additional groups of patients differently if we were to ascertain the relative importance of the two actions of penicillin, the systemic and the local. One group consisting of 2 patients was treated solely by urethral instillations of penicillin and the second group by intramuscular injections and the retention of urine during the period of therapeutic response.

THERAPEUTIC RESULTS WITH LOCAL INSTILLATIONS ALONE

The patients were allowed to void, and 4 cc. of penicillin solution was instilled into the anterior urethra and retained for five minutes. Every two hours in 1 case and every hour in the other, smears and cultures

were made of the urethral exudate and another instillation of 4 cc. was made. One patient received 1,000 units every two hours for five injections and the other 3,000 units every hour for seven instillations.

In the first of these 2 cases the smears and cultures became negative after the first injections but were strongly positive on the following morning. In the other case neither the cultures nor the smears became negative at any time.

These 2 cases seemed sufficient to demonstrate the inability of penicillin applied locally to eradicate gonococcic infection from the anterior urethra, and no more attempts were made. Both these patients were successfully treated by intramuscular injections on the following day. The first is case 6 in table 1.

THERAPEUTIC RESULT BY SYSTEMIC ACTION ALONE

The reciprocal experiment designed to eliminate the local action of the penicillin, which washes the surface of the urethral mucosa with each urination, was carried out on 7 patients. They received intramuscular injections, as did those in the first group, but retained their urine for the period of treatment and observation. To make this possible without discomfort they had been instructed to reduce their fluid intake to a minimum the preceding day. In all cases the urethral exudate underwent the same changes in character and disappeared as rapidly as in the cases in the first series, and the smears and cultures became negative at the same rate.

The data on 3 of the 7 patients in this series are presented in table 2. In all 7 the average lengths of time from the beginning of penicillin treatment to the first negative cultures and smear were 3.8 and 3.1 hours respectively. These results are almost identical with those obtained in the first group of cases and indicate that the therapeutic action of penicillin in gonococcic urethritis is systemic rather than a local; that is, it is due to the penicillin brought to the tissues by the blood stream rather than that which passes through the urethral canal in the urine.

RESULTS OF FOLLOW-UP EXAMINATIONS

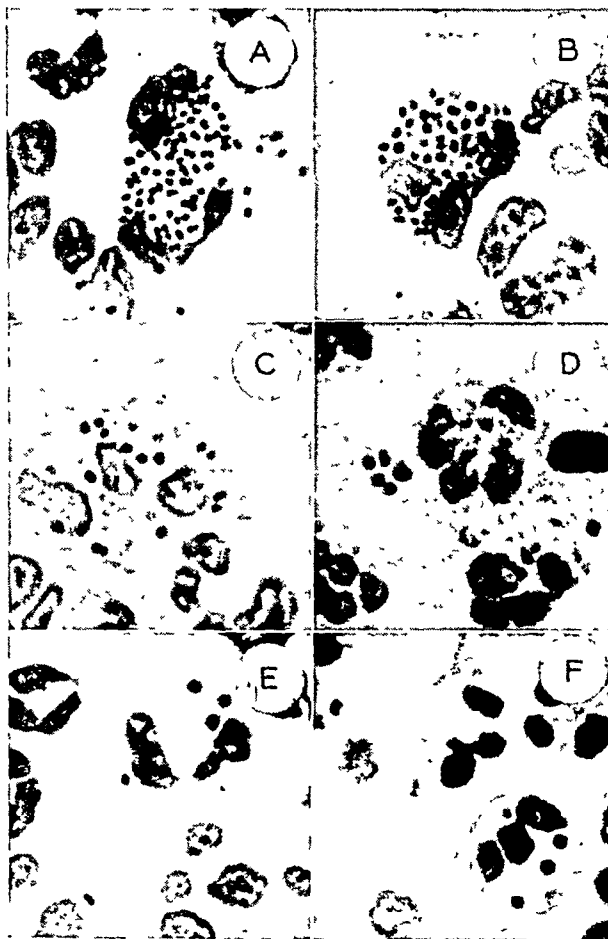
With 1 exception the patients were all followed by a systematic series of follow-up examinations, which began one week after treatment and included prostatic massage in 9 cases and provocative soundings in 2. Six patients were examined after bouts of excessive drinking. In no instance were gonococci found in cultures or smears after the examinations made during the period of treatment.

Two reinfections occurred. Both were regarded as such rather than relapses for the following reasons: One of them (case 1) occurred four months after treatment with penicillin, during which time the patient had been quite free from symptoms and had had four follow-up examinations, each including cultures, all of which were negative. He gave a definite history of exposure to account for his second infection. It was successfully treated with penicillin. Six follow-up cultures since then have all been negative.

The other occurred in case 9 a month after treatment with penicillin, during which time the patient had three follow-up examinations and cultures, all of which were negative, the last one a week before the exposure, which resulted in infection four days later. The reinfection responded promptly to penicillin.

COMMENT

Although only 21 cases were studied in this investigation, the results seem to be sufficiently striking to warrant presentation. The clinical signs and symptoms of urethritis subsided and disappeared with remarkable rapidity, in fact within two to five hours after beginning the administration of penicillin by intramuscular injection. At the same time the number of gonococci recovered by smear or culture from the urethral exudate diminished rapidly to the vanishing point. The interval between the onset of treatment and the first negative culture varied from one to six hours, with an average of $3\frac{3}{4}$ hours. The rate of disappearance was not



Microscopic appearance of smears stained by Gram's method; A, 0 hour (immediately before first injection of penicillin); B, 3d hour (after 1st injection of penicillin); C, 3d hour; D, 2d hour; E, 2d hour; F, 3d hour.

significantly slowed in those patients who retained their urine throughout the period of treatment, thereby eliminating the local action of penicillin on the urethral mucosa during urination. This finding, together with the failure of the local application of penicillin by instillation in 2 cases, indicated that penicillin is brought to the infected mucosa by the blood stream rather than from the lumen of the urethra.

The precise nature of the gonococcidal action of penicillin is not understood and lies outside the field of this investigation. The peculiar morphologic changes shown by gonococci in smears at the time their numbers were diminishing most rapidly are similar to those which can be produced in vitro by the action of penicillin

cent gentian violet, as reported by Wolff, Elkinton and Rhoads.⁹ In these cases the bromsulphalein retention rose to over 15 per cent thirty minutes after injection, the van den Bergh reaction was slightly increased and the plasma prothrombin was decreased. The literature contains evidence from human autopsies that degenerative changes may occur in the liver without the use of any of the tanning agents, and Wilson, MacGregor and Stewart⁸ describe a case in which clinical jaundice occurred in which only oil was applied locally. The association of actual liver necrosis with the use of tannic acid, however, is striking in the autopsy series of Erb, Morgan and Farmer.¹⁷

The possibility remained that tannic acid would not be harmful on small burns but that with burns of more than one third of the body surface enough absorption would take place to cause fatal liver damage. The fact that patients with burns of over one third of the body surface frequently die even when no tanning agent is used and when the circulation is maintained with plasma would lead one to conclude that, although tannic acid may have been absorbed from large burns in sufficient amounts to cause some liver damage, this was seldom more than a contributory cause of death.

In summary, therefore, our present knowledge indicates that the tannic acid treatment relieves pain well, helps prevent infection in second degree burns and perhaps delays the development of infection in the deeper burns until danger from shock and toxemia have passed. It does not prevent toxemia, and if it is absorbed in sufficient quantity it is capable of producing liver damage. On the other hand, there is as yet no substantial evidence that it has increased the mortality of burns in man. It decreased the loss of plasma-like fluid from the surface of second degree burns, but there is no conclusive evidence that it has reduced the loss of plasma from the circulation into the tissues.

Numerous statistics in the literature¹⁸ indicate that its use was followed by a decrease in mortality, and we believe that it has saved many lives. Now, however, that invasive infection is so well controlled by chemotherapeutic agents it seems likely that the tannic acid method will be superseded more and more by other methods, many of which are similar to the very methods it displaced before the days of the sulfonamides.

The ultimate place of the tannic acid method will probably be based not on animal experiments nor on plastic results but on human mortality experience. Analyzing the statistics compiled by Harkins,¹⁹ one finds that without tannic acid the combined mortality for 1,369 cases was 26.7 per cent, whereas with tannic acid in a series of 1,660 cases it was 10.5 per cent. It is premature to state whether a further reduction in mortality is being made by the nontanning methods now in use.

1833 Pine Street.

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SURGICAL CLEANLINESS, COMPRESSION AND REST

AS PRIMARY SURGICAL PRINCIPLES IN THE TREATMENT OF BURNS

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In spite of the twin spurs of war and civil disaster to the study of burns we are still far from a complete understanding of the changes in the body tissues, the body fluids and electrolytes that result from a severe burn. In the past few years, however, many workers in our own and other countries have made helpful contributions to the solution of this difficult problem and have made the entire medical profession increasingly aware of its importance. McClure¹ and his able associates at the Henry Ford Hospital—Hartman, Harkins, Lam and Romence; Reid,² Siler, Altmeier and their associates at the Cincinnati General Hospital; Churchill,³ Cope, Lyons and Cannon at the Massachusetts General Hospital; Lund,⁴ Levenson and Taylor at the Boston City Hospital; Drinker⁵ and his associates at Harvard University; Dragstedt⁶ and his co-workers at the University of Chicago; Rhoads,⁷ Wolff, Elkinton and Lee in Philadelphia; Hirschfeld⁸ at the Detroit Receiving Hospital; Neal Owens⁹ at Tulane; Elman¹⁰ at the St. Louis City Hospital; Evans¹¹ and his associates at the Medical College of

From the Department of Surgery, Northwestern University Medical School, and the Children's Surgical Service, Cook County Hospital.

This paper, in a symposium on "The Treatment of Burns," is published under the auspices of the Section on Surgery, General and Abdominal.

With Dr. Siler's consent I have used almost the identical title of his excellent paper published in Surgery, Gynecology and Obstetrics in August 1942.

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Virginia; Wells¹² at Hartford; Gurd¹³ and his co-workers at the Montreal General Hospital have all given time and intensive effort toward solving some of the unanswered questions in the minds of surgeons everywhere and in working out more effective methods of treating burned patients. Whipple,¹⁴ in ably directing the activities of the Subcommittee on Burns of the National Research Council, has brought together men with helpful ideas and wide experience and has helped to make their ideas and experiences available for the armed forces and medical men everywhere.

In spite of the uncertainty concerning many of the physiochemical changes in body tissues and body fluids, three simple principles have come to be recognized as of fundamental importance in treatment: the surgical cleanliness that prevents infection, the compression of the injured area that prevents fluid loss, the rest that is so important if tissues are to heal in the minimum period of time. Each of these deserves brief consideration.

SURGICAL CLEANLINESS

The relative importance of the ounce of prevention and the pound of cure is nowhere more dramatically demonstrated than in the patient with an extensive burn. With the burned surface free from infection, covered with an occlusive compression dressing and left undisturbed, a patient can remain in comfort for ten, twelve or fourteen days and "emerge from the cocoon" at the end of that period with the burned surface completely healed wherever there has not been whole thickness destruction of skin. The same injury, if infection supervenes, can result in widespread destruction of the covering tissues that have survived the initial injury, long delay in healing and all the well known sequelae of an extensive, infected open wound.

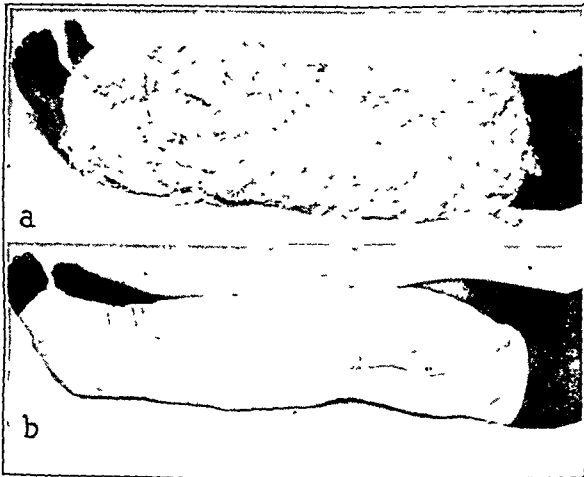


Fig. 1.—a, burned extremity covered with dressing surrounded with mechanics' waste; b, after application of elastic bandage.

We have long been aware of the rapidity with which virulent infection can develop in an unprotected open wound. Aldrich and Cruickshank,¹⁵ particularly, have

emphasized the vulnerability of burned surfaces to infection. We have been peculiarly slow in applying the simple remedy—to cover the burned surface at the very outset so as to avoid contamination; if it has been exposed to contamination, to cleanse it with care to avoid trauma and further contamination; and, finally, to "close" the open wound and keep it closed.



Fig. 2.—a, application of compression dressing over burned face; note swelling of upper lip where compression cannot be applied; b, appearance on removal of primary dressing seven days after admission.

To cover the burned surface at the earliest possible moment is simply to recognize the oft demonstrated fact that the most important sources of wound contamination are the uncovered mouths and noses of the patient and of every one about him. To cover the wound immediately with the cleanest protective at hand and eliminate those potential sources of infection is simple common sense.

If the open wound has been contaminated before the patient comes to us it is equally logical to attempt to convert it into a clean wound by simple soap and water cleansing, carried out with care to avoid trauma and to avoid further contamination. Concerning the necessity and wisdom of this procedure there has been considerable difference of opinion, owing in large part to the successful results obtained in spite of its omission at the Massachusetts General Hospital after the Coconut Grove disaster. There the burned surfaces of the patients were simply covered in the emergency room with sterile towels and shortly afterward with non-adherent gauze and occlusive pressure dressings. One may point out, however, that these cases were not typical of the cases of severe burns that come to the hospital day after day. They had had no first aid care; they had undergone a minimum of exposure to external contamination; they reached the hospital within a very brief period after the disaster occurred. Under these circumstances, and in view of the large number of cases demanding attention, no one, I think, would question the wisdom of the method of treatment carried out at that time.

What happens much more often, certainly with patients admitted to the Cook County Hospital, is that the patient has received extensive, often ill advised, first aid treatment—application of greasy ointment, butter, lard—whatever the corner drug store or home can furnish, and several hours after this application, carried out under voluble mouths and weeping eyes and noses, the patient is admitted to the receiving ward of the hospital.

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After such first aid treatment given three, six, twenty-four hours before the patient is admitted to the hospital, to attempt to convert the injured surface into a clean wound again seems to me simply common sense. Needless to say, one would insist on gentleness, the use only of soft cotton and plain white soap (never scrub

cleansing can be of definite aid is indicated by cultures obtained before and afterward. One might say with some justification that swab cultures made after cleansing of a burned surface do not adequately represent the conditions present; but if the original culture shows a great variety of organisms present before cleansing is



Fig 3—Appearance immediately after removal of compression dressing eight days and seven days after injury, note in patient at right absence of swelling in soft tissue of lids



Fig 4—a, appearance of patient on admission one hour after injury, b, compression dressing, c, appearance on discharge, eight weeks after injury

brushes or tincture of green soap), irrigation with warm salt solution and the surgical cleanliness routinely employed in a well regulated operating room—masks, sterile gloves, thoughtful care to prevent additional contamination. Loose destroyed tissue which has not been washed away I should always lift away with sterile forceps and scissors. Blisters can be left untouched. Most of them will probably give way under a well applied compression dressing. That such

begun, and if many of these fail to appear subsequently during the process of wound healing, such findings seem to me significant.

One would admit freely that there are borderline cases in which good judgment must be exercised as to what should be done and what omitted; and it is unnecessary to add that often treatment to anticipate or relieve shock must go hand in hand with local treatment

THE DRESSING

To cover the burned surface with a nonadherent dressing which permits drainage through it and which can be removed with a minimum of difficulty when removal is indicated seems an entirely logical thing to do. Whether the fine meshed gauze applied directly to the wound surface should be impregnated with petrolatum, boric acid ointment, xeroform ointment, ointment containing zinc peroxide, sulfathiazole, sulfanilamide or sulfadiazine or simply saturated with salt solution is one of the details concerning which there is not sufficient evidence available to permit one to make dogmatic statements. My own preference has been for simple petrolatum, though more recent experiences support the observations made by Meloney^{15a} and others that the use of polyethylene glycols containing 20 per cent zinc peroxide is more helpful in controlling potential infection. The fact that a simple nonirritating dressing provides favorable conditions for wound healing is well demonstrated by Cope and Cannon's¹⁶ study of the rate of healing under various methods of treatment of donor sites after removal of skin grafts, and by Hirshfeld, Pilling and Mann's⁸ study of the comparative effect of tanning agents and petrolatum gauze on fresh wounds.

To cover the nonadherent gauze with sufficient gauze and mechanics' waste to make possible compression of the entire injured surface is the application of a simple method of arresting fluid loss. When confronted with bleeding, one's first impulse, whether layman or surgeon, is to apply direct pressure and stop the bleeding. Curiously, if we cannot actually see the bleeding we do strangely illogical things: apply ice bags, inject procaine hydrochloride (for the bleeding that follows a sprain), perhaps make incisions to relieve tension. Not often enough do we apply the simple principle of applying direct pressure when the site of bleeding is under the surface and when it involves a considerable area.

The fact is inescapable that the exudation of plasma that occurs from a burned surface and into the soft tissues underneath it is exactly comparable to the hemorrhage that occurs into the soft tissues following a crushing injury. It can be checked and limited in the same way—by the application of a compression dressing over the injured area.

It is scarcely necessary to point out that such a dressing should be a compression dressing and that it should not cause constriction or restriction of the circulation. If an extremity is involved, the dressing should begin at the tips of the digits, and the individual digits should be separated. Once properly applied, it should be supported with splints and left alone. If an extremity is involved, elevation of the part brings the aid of gravity to the return circulation and helps to prevent stasis and discomfort.

REST

Hugh Owen Thomas's dictum "Inflamed and injured tissues need rest" could well be emblazoned over the

doorway of every surgical ward. Many of us can recall the days of our internship when it was considered proper and necessary to dress the burned areas of the injured patient each day from the time of his admission to the hospital. I look back with dismay to the injury I inflicted in years gone by on burned patients by repeatedly tearing down the tissue nature was trying to rebuild and by constantly exposing large open wounds to reinfection from the dust of the ward, from my own hands and from my uncovered mouth and nose. Yet I was trying to carry out the teaching and follow the practice of my attending surgeons.

Every surgeon and every burned patient is under everlasting debt to Davidson¹⁷ because he taught us to "close the open wound"; and, since the coagulant

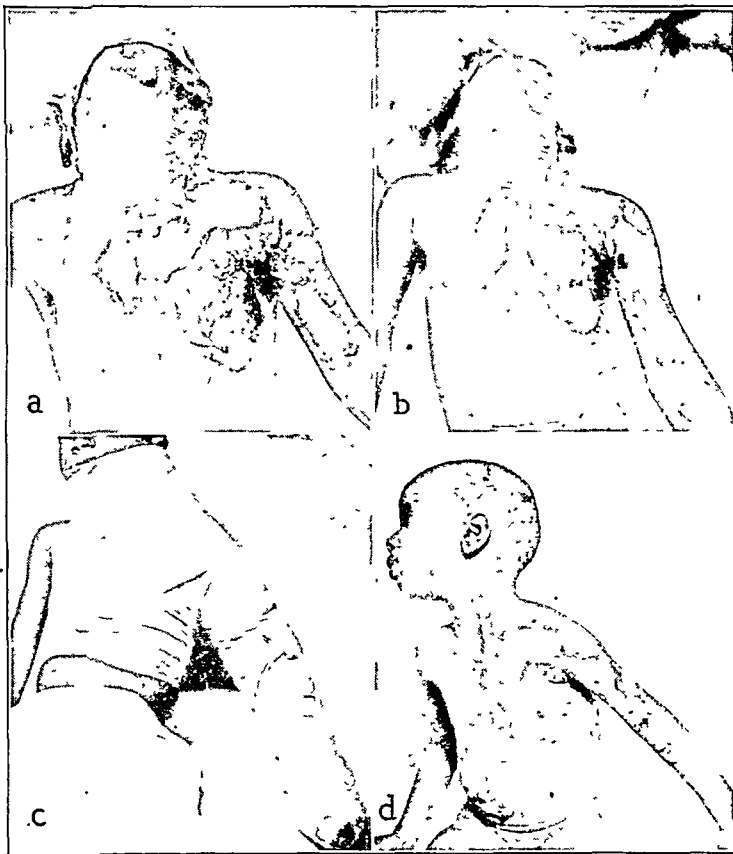


Fig. 5.—a, appearance of patient on admission two hours after injury; b, after cleansing; c, compression dressing; d, on discharge, nineteen days after injury.

crust that he devised could not be easily removed, we learned the wisdom of keeping the wound closed, of not subjecting it to repeated injury and of keeping it at rest.

That a tannic acid crust is not the most satisfactory means of attaining these objectives and that it has some serious disadvantages does not nullify Davidson's work, or the great impetus he gave to efforts to provide better care for burned patients.

Since 1925, when Davidson first advocated closing open wounds with a tannic acid crust, we have learned that the same closure can be obtained by a simple nonadherent dressing which does not produce coagulation of undamaged cells remaining over the burned area and which can and should be left alone, if no

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infection is present underneath it, until reformation of destroyed epithelium is as complete as possible. It has been demonstrated time and again that, if the whole thickness of the skin has not been destroyed, complete healing of the burned surface takes place in from ten to fifteen days if only infection can be prevented, if the injured surface is protected by the compression dressing and if the all important "rest for injured tissues" is maintained. The same conditions favor separation of the destroyed tissue if whole thickness destruction has taken place and help make possible early replacement by transplantation of skin from another part.

SUMMARY

The logical treatment of burns is based on three simple premises: 1. A burn, as Mason¹⁸ pointed out so clearly, is essentially an open wound involving the



Fig 6—Appearance of burned surface twenty days after admission. With aid of indwelling catheter and good nursing care burns about the perineum can be kept covered with compression dressings throughout the period necessary for wound healing.

superficial tissues and is subject to the same serious complications—infection and hemorrhage. 2. Both infection and hemorrhage can be prevented by well directed treatment at the very outset. The essential features of such treatment are surgical cleanliness, compression of the injured surface to prevent fluid loss, and rest. If infection and hemorrhage are not prevented, control of either or both can become exceedingly difficult. 3. If the injury has resulted in complete loss of covering tissues, replacement at the earliest possible moment is most certain to result in prompt healing, with maximum retention of function.

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¹⁸ Mason, M. L.: Local Treatment of the Burned Area, *Surg., Gynec. & Obst.* 72: 250-253 (Feb.) 1941

THE EARLY PLASTIC CARE OF DEEP BURNS

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AND

JOHN W. GERRIE, M.D., C.M.

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Prior to 1925 in the treatment of burns, despite the fact that in all major clinics a high mortality was encountered, comparatively little attention had been paid to the victim of such a disaster. In that year the late E. C. Davidson commenced the publication of a series of articles which in recommending the tannic acid treatment of burns drew attention to the fact that loss of plasma was one of the major causes of death. Davidson's contributions were followed by an enormous increase in the interest shown in the treatment of the burned individual. During the ensuing years gradually more and more attention has been paid to the problem and, with the commencement of hostilities in September 1939, the problem of burn therapy has become one of the major interests of all surgical services in the armed forces.

One of the important features of this increased attention to these problems has been a recognition of the fact that skin is the most useful covering for a burned surface; that not only is plasma loss minimized and progressive hypoproteinemia halted by early skin coverage but that late deformity and disfigurement are thus minimized, and, more particularly perhaps, that the morale of the victim is improved. In our clinic at the Montreal General Hospital it has been one of our chief aims to plan the treatment of the burn wound so that early covering by means of skin grafting might be carried out.

A burn due to heat may be considered as a wound which is accompanied by special features, notably an immediate threat to life, owing to the particular form of shock which characterizes the lesion and the later threat due to toxemia, sepsis and nitrogen imbalance and, secondly, a widespread loss of surface tissue as compared with the depth of it.

Although tannic acid and other escharotics appear to have had a favorable effect in lowering immediate burn mortality, such methods delay the employment of skin coverage by grafting. This delay is due to several facts, namely (1) that the tanned tissue is frequently difficult to remove at an early date, (2) that suppuration beneath the tan has proved a bad feature in many cases and (3) that, as a result of the foregoing, exhaustion of the patient occurs so that, on the one hand, operative intervention must be delayed and, on the other hand, failure of grafts to take is probable. Gradually, and except under very special circumstances, the employment of tanning methods has been discarded in our Montreal General Hospital Clinic during the past three years. Effective shock and toxemia treatment with newer methods of controlling nitrogen imbalance and logical wound dressing care have resulted in a decrease in the mortality rate, and early and timed skin grafting has lowered morbidity and deformity.

Skin grafting is best started as soon after control of the shock and toxemia phases as the patient's con-

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dition will permit. Theoretically this is before the burned areas pass into a phase of chronic infected granulations and the patient into a state of inanition and chronic protein loss. We are convinced that it is unwise to postpone grafting while waiting for problematic epithelium to grow in from the edges of the wound and for doubtful hair follicle and sweat gland epithelium to reach the surface and spread. The patient with an extensive burn recovers in proportion to the speed and extent of skin coverage. There is an optimum time, and we believe this to be early, when it is advisable to step in and surface the denuded area. In a recent publication from our clinic we¹ have stressed the importance of timing in burn treatment. By timing we have meant that a plan should be laid down so that each step in the treatment of the burned patient should be clearly indicated in a routine sequence. Part of this routine has been that a surgeon trained in plastic surgery is added to the shock and burn teams from the very outset. The plastic surgeon is made, therefore, a member of the team on which the time procedure is based from the first. He is available for advice and also to carry out whatever operative intervention for skin coverage is deemed advisable.

ASSESSING THE BURN DAMAGE

At the outset the significant features of the burn history and the clinical appearance of the burned areas are carefully assessed and are of considerable value in



Fig 1 (case 1)—Appearance on sixteenth day at first redressing, with the deep burns on the right side of the abdomen and thigh obvious, superficial burns healed

"timing" the course of the future treatment. This assessment is the most reliable guide to burn depth and the probability of skin grafting to come. A scald from moderately hot liquid with an erythematous or lightly blistered skin will undoubtedly be a superficial burn, healed at the first redressing. A pressure steam burn or burn from excessively hot liquid with wide blisters and intervening searing will be deeper (figs. 1 and 2) and the plastic surgeon is "timed" in, is present at the first redressing and is prepared to go ahead with skin surfacing as indicated. Flash burns are of the same type. Flame burns as from ignited clothing are more uniformly deep (figs. 4 and 5), the skin is seared, and skin grafting will be required. Electrical burns are bad and there is often deep loss of tissue with coagulation which may further complicate the skin grafting which may follow. The plastic surgeon or one ready to carry on this work stands by at each redressing at ten to fourteen day intervals, prepared to carry out the necessary skin surfacing as early as feasible.

1 Gurd, F. B.; Ackman, D.; Gerrie, J. W., and Pritchard, J. E.: A Practical Concept for the Treatment of Major and Minor Burns, *Ann Surg* 116: 641-657 (Nov.) 1942.

In assessing the burn damage, the extent is calculated and recorded according to Berkow's tables. In estimating depth we have discarded all previous classifications, since they tend to confuse. The only useful classification, we believe, is that which indicates the eventual therapy required. Thus we have the super-



Fig 2 (case 1)—Appearance at redressing ten days later with donor site on the left side of the abdomen healed and complete take of the grafts on the right.

ficial burn in which the epithelium will show quick regeneration or the deep burn which will require skin grafting.

The use of sodium fluorescein as described by Dingwall² may prove to be a help in assessing this matter of depth. How to incorporate the test in the "timed" treatment of burns is the problem.

THE OCCLUSIVE PRESSURE DRESSING OF THE BURN WOUND

The important principles of dressing in preparation of the burn wound for skin grafting are (1) rest, (2) infrequency, (3) occlusion and (4) pressure. To this is added a sulfonamide effect from a 5 per cent oil in



Fig 3 (case 4).—An extensive body burn at the first redressing on the tenth day. This patient was completely grafted at the third redressing, on the thirtieth day, with isodermal grafts from the mother and autodermal grafts from the patient's back.

water emulsion of sulfathiazole prepared according to the Montreal General Hospital formula, as outlined by Ackman and Wilson.³ Pressure keeps down edema,

2. Dingwall, J. A. Clinical Test for Differentiating Second from Third Degree Burns, *Ann Surg* 118: 427 (Sept.) 1943.

3. Ackman, D., and Wilson, G. Surgical and Gynecological Experiences with an Emulsion of Sulfathiazole, *Canad M. A. J.* 46: 209-214 (March) 1942.

prevents fluid loss, promotes healing, prevents exuberant granulation and effectively replaces the eschar treatments. Infrequency of dressing and occlusion prevent cross infection and bathe the wound in an exudate which contains whatever immune bodies may be present. In none of our cases has a streptococcal infection complicated the picture. In the 5 per cent sulfathiazole oil in water emulsion we have an effective local agent, we believe superior to boric acid or petrolatum dressings. The sulfathiazole is active in the water phase of the emulsion, does not cake, has been found present in the granulations up to 120 mg. per hundred cubic centimeters and has never given us a blood level of over 3.5 mg. per hundred cubic centimeters and rarely over 1.5. It is our opinion that the presence of sulfathiazole in the recipient graft bed up to these percentages in no way hinders but rather enhances graft take.

This dressing is placed following gentle soap and water washing and minimal débridement, with use of operating room technic, as soon as the patient's condition and the exhibition of shock therapy permit. The burned wound is shingled with 4 by 6 inch cuts of wide mesh lace (Nottingham lace of a bastard weave with 11 strands to the inch) well buttered with sulfathiazole emulsion (fig. 4). A liberal layer of emulsion is placed over the wide mesh lace and the dressing completed with surgical gauze, cotton waste to a depth of 4 to 6 inches and flannel bandage cut on the bias and reinforced with adhesive tape (fig. 5). The wide mesh lace tends to splint the wound surface and to provide a base for the dressing, which shows little tendency to slip. At no time have granulations become enmeshed in this or been a bothersome feature. On leg or arm burns, thin plasters may be added to prevent ankle, wrist or shoulder movement. This dressing (fig. 5) is infrequent. The patient is comfortable and, if the general condition permits, can be transported without fear of damage or contamination. This dressing is not removed, and there is no reason to remove it until the tenth to the fourteenth day. It is then taken down in the operating room and either (1) the burn wound is healed or early complete repair is evident or (2) it is grafted in whole or in part and redressed by the same technic for another ten to fourteen days or (3) grafting is deferred and the wound redressed



Fig. 4 (case 4).—The wide mesh sulfathiazole lace being applied.

by the same technic for another ten to fourteen days. In this way the whole burn treatment is "timed" into a series of one to five or six dressings at ten to fourteen day intervals with no intermediate dressings.

TIMING OF THE SKIN GRAFTING

In the treatment of wounds, whether operative or due to trauma, closure may be accomplished by either primary suture, delayed primary suture or secondary suture. For many years McKim and one of us (F. B. G.) have believed that in the care of wounds

due to trauma the advantages of delayed primary and secondary suture have not been fully appreciated. In this communication we suggest that as far as the skin coverage of burns is concerned a similar terminology may be used and that there is a place in burn therapy for primary skin grafting, delayed primary skin grafting and secondary skin grafting.



Fig. 5 (case 4).—The complete dressing with a surgical window over the umbilicus for wound bacterial cultures.

1. Primary skin grafting is analogous to primary wound suture. Under the name of immediate grafting it has been described by Forrest Young⁴ and was suggested by Sir Harold Gillies on his recent trip to this country when he showed a four day old burn so treated. It is theoretically sound, as the burn is excised, the wound grafted and the area healed by first intention in a week or ten days, a minimum deep burn morbidity. However, it has a very limited applicability and is indicated only in obviously deep, circumscribed burns where there is no evidence, or likelihood, of shock. Few burns come into this category.

2. Delayed primary grafting of burns is analogous to delayed primary suture of wounds. The grafting has been delayed while the general condition of the patient and the local condition of the wound have been made ready. This is the usual and desirable type, and the aim of our clinic has been to graft most burns between the first and third dressings, the tenth to the forty-second day. The burn wound is dressed in an occlusive pressure sulfathiazole dressing and the decision to graft delayed until the tenth to the fourteenth day, when the shock and toxemia phases are passed and the first redressing is done. From the standpoint of the average patient's general condition, this is the optimum time for skin grafting, as it is before the period of inanition and chronic protein loss sets in. The local condition may not be ready but can often be prepared by judicious surgical excision of slough. The local condition is ready for grafting when slough and depth become apparent and before granulations become too obvious. It is at this stage that a test with sodium fluorescein might be helpful. The local area should be ready for a delayed primary graft at the first, second or third ten to fourteen day dressing.

3. Secondary skin grafting from six weeks on is undesirable but may be necessary in cases of badly infected wounds in emaciated patients in whom the burn wound was not initially controlled. It may be necessary in cases treated at home or in isolated areas where skin grafting was not available or its advantages were not realized.

4. Young, F.: Immediate Skin Grafting in the Treatment of Burns. *Ann. Surg.* 116: 445-461 (Sept.) 1942.

ISODERMAL GRAFTING

Autodermal grafting, or the use of the patient's own skin, is preferable. Isodermal grafting, or the use of skin from other than the burned individual, is in the nature of a temporary dressing. It has a limited applicability, as in the case of a child recently seen with extensive burns whose own skin proved inadequate and whose general condition was bad.

Isografts dissolve and disappear in three to six weeks. The literature to date has not been very hopeful of securing permanent isodermal grafts of any sort. Padgett⁵ tried isografting in 50 well controlled cases and concluded that isodermal grafting was not practicable. Bettman⁶ advocates it as a life saving measure. Brown⁷ reported 1 case of successful homografting, a small experimental graft from 1 identical twin to the other. However, the whole question of temporary isodermal grafts in the nature of a burn dressing is still wide open. Time⁸ has set its stamp of approval on the method, giving publicity to the voluntary donation of convict's skin to burn sufferers and the establishment of skin banks. A recent article by Sachs and Goldberg⁹ on foreskin isografts is reassuring and worthy of further work and substantiation. They stress the point of using skin from the newborn and premature infant in that its growth potentialities are greater. They believe that 65 to 75 per cent of their transplanted skin has survived and have been able to identify some grafts eight months later. This may open the possibility of refrigerated skin banks for burn emergencies.

INFLUENCE OF INFECTION ON GRAFTING

In none of the cases that have been under our control from the time of injury has infection delayed grafting. In a number of cases prior to admission to the hospital moderately severe infection with accompanying inflammatory reaction had already become established. In all of the latter group of cases the ulcers were ready for grafting after the application of but one dressing, that is at the end of from ten to fourteen days. The occlusive pressure sulfathiazole oil in water emulsion dressing in our experience has controlled or so moderated infection that grafting may be successfully carried out. At no time after the first redressing have we been able to culture streptococci, *Bacillus pyogenes* or *Proteus vulgaris*, the micro-organisms which seem to have the most deleterious effect on skin grafting. Although we have usually been able to culture *Staphylococcus aureus*, these have been present in but small numbers, and have not proved to be of importance. To summarize our experience in this regard, therefore, we feel justified in making the statement that controlled staphylococcus effects are not a contraindication to skin grafting when the technic recommended in this contribution is employed. The more serious infections have not in our experience occurred.

GRANULATIONS AND GRAFTING

Exuberant granulation tissue is an abortive attempt at wound healing that has been unsatisfied by epithelial covering at the appropriate time. It decreases the certainty of graft take and increases subgraft scar. Skin grafting of burned surfaces is therefore preferable

before granulations become obvious. Exuberant granulations are the result of prolonged wound treatment and are no serious contraindication to skin grafting provided they are removed. It is preferable to remove exuberant granulations and graft rather than to give them prolonged treatment to render them less exuberant before grafting. The removal is done by a scraping motion with sharp scalpel rather than a slicing procedure. This provides a more even base with less bleeding. They are taken down to the firm yellow base from which they spring. The scalpel is preferable to a curet. Bleeding is, as a rule, easily controlled by the application of hot packs and the prompt application of the skin graft, which itself seems to have a pronounced hemostatic effect. Sutures or ties are seldom necessary to control hemorrhage.

THE CHOICE OF DONOR SITES

The choice of a donor area is occasionally influenced by the site and extent of the burn and the sex of the patient. With small burns in female patients it is well to take skin from the buttocks, loin or abdomen, or some place in keeping with the trend of increasing exposure in women's styles. In a limited arm or limb burn it is convenient to take skin from an adjacent area. In extensive burn cases one finds the skin where one may and hopes there will be enough. In such severe burns it is well to take extremely thin grafts and plan on cutting successive crops from the same donor sites.

Various body surfaces present definite anatomic features making them suitable, or otherwise, for skin donation. The Padgett dermatome makes all body surfaces available, and reasonably large and even sheets of skin may even be cut from the back or front of the chest cage.

Histologically, back, loin and buttock skin are most suitable and large sheets may be taken to considerable depth. These areas provide both a thick epidermis and dermis with excellent healing qualities. Abdominal and bicipital skins are thin, especially in young patients. Inner thigh skin is also thin, the outer thigh being of an intermediary type. The abdomen and front chest areas present dressing difficulties and tend to move with respiration even under our occlusive pressure dressings, with a resultant delay in healing.

The back, loin and outer thigh have been our donor sites of choice. They are dressed in identically the same way as the original burn with an occlusive pressure sulfathiazole dressing that is not removed for two weeks. The site is then usually healed or nearly so, is brought out into the air as quickly as possible and is massaged with petrolatum or olive oil. Prolonged dressing of donor sites tends toward maceration and further skin destruction or delay in healing.

THE TECHNIC OF FREE SKIN GRAFTING

The Padgett dermatome has taken some of the "ifs" out of skin grafting and has many advantages over the older knife and razor methods. It is not fool proof, and one must become familiar with the vagaries of knife, cement and drum. If used with care and understanding, even sheets of skin may be cut from almost any part of the body. It has the advantage of calibrated adjustment, and even thickness may be cut from 0.006 of an inch to full thickness of the skin. The Blair-Brown knife and suction box technic¹⁰ has been an excellent method, especially in the hands of experts,

5. Padgett, E. C.: Care of the Severely Burned, *Arch. Surg.* 35: 64-86 (July) 1937.

6. Bettman, A. G.: Homogenous Thiersch Grafting as a Life Saving Measure, *Am. J. Surg.* 39: 156-162 (Jan.) 1938.

7. Brown, J. B.: Homografting of Skin, with Report of Success in Identical Twins, *Surgery* 1: 558-563 (April) 1937.

8. Skinning Convicts, *Time* 42: 46 (Nov. 15) 1943.

9. Sachs, A. E., and Goldberg, S. L.: Foreskin Isografts, *Am. J. Surg.* 60: 255-259 (May) 1943.

10. Blair, V. P., and Brown, J. B.: Use and Uses of Large Split Skin Grafts of Intermediate Thickness, *Surg., Gynec. & Obst.* 49: 82-97 (July) 1929.

but the consensus seems to be that the dermatome has even more to offer. The Marcks attachment to the Blair-Brown knife is possibly a further refinement of this method.

Thick grafts are less certain of take than are thin grafts, but the thick graft contains more of the elastic tissue of the dermis and is therefore of a better texture. In the early burn wound it is well to concentrate on take rather than on texture. The latter can be corrected later, if necessary. It is the opinion of our pathologist, Dr. J. E. Pritchard, that some of our thin grafts have acquired additional subgraft dermis and its contained elastic tissue in the course of time. Our preference has been for grafts between 0.008 and 0.016 inch in thickness, which is on the average 50 per cent, or less, of the total skin depth.

The dermatome is set up on a separate table and, if possible, the wound preparation and skin grafting are kept as separate procedures. The skin is sliced off to the desired amounts and depths. The thinner grafts are usually transferred to sheets of our wide mesh lace buttered with sulfathiazole emulsion. The skin adheres to the lace, so that it is more easily handled, since the surfaces which are at least partially covered by cement are prevented from sticking together. The lace and skin are sewn in; the lace helps to "fix" or "snub" the skin into position. If thicker skin is used, it is sewn in alone without the intervention of the lace, as it contains too much elastic tissue and curls away from, and will not adhere to, the lace.

The amount of skin transferable at one operation is limited only by the amount of time available and the patient's condition. In extensive burns it is wise to have two teams at work, one cutting the skin and the other sewing it in place. In this way maximum areas of skin may be transferred at one operation. Grafted and ungrafted areas are dressed together as was the original burn and left for ten to fourteen days before another intervention. If, at this next dressing, skin coverage is complete or nearly so, sutures are removed and the graft and donor sites exposed to the air and given petrolatum or olive oil massage.

SKIN GRAFTING THE BURNED FACE

Burns of the face present a different problem to those of other parts of the body. Free skin grafting, at best, is not a satisfactory method, since it is so likely to result in a "patchwork quilt" appearance. Skin transferred from other parts of the body usually tends to retain its own color and texture or, what is worse, to become pigmented in an unsightly fashion. It is clear that the surface of the eyelids must be replaced early, since serious injury to the eyeball may otherwise be suffered in consequence of the ectropion which is sure to develop. Similarly, repair of ectropion of the lips, particularly of the lower lip, should be an early procedure chiefly because the drooling which occurs under these conditions has such an unfavorable effect on the patient's morale. The grafting of skin to other parts of the face should however, we believe, be postponed for many weeks in most cases since, in addition to the unpleasant appearance of the grafted face, it is clear that on the one hand deep burns of the face are comparatively unusual, and on the other hand the skin of the face exhibits an unusual capacity for epithelial regeneration from deeply placed hair follicles and sweat glands.

It is a matter of common knowledge that the cartilages of the ears and nose are very liable to necrosis

as the result of burns and that large portions are often lost. The repair of these and other gross deformities becomes the problem of late reconstruction and is not discussed in this contribution.

It should be an axiom that "face skin is best for face reconstruction." As a general principle we believe that a scarred face is preferable to the masklike effect which follows free grafting in the early post-traumatic period.

BURNED PATIENTS GRAFTED

A survey of the last 100 consecutive skin grafting operations that we have performed shows that there were 35 delayed primary grafts in 22 burn patients. In addition, 12 skin grafting operations were carried out on 8 patients for the late reconstruction of burn deformities. This is a total of 47 out of 100, or 47 per cent of our skin grafting operations for primary or secondary reconstruction of the burned patient. It is thus seen that approximately one half of our skin grafting procedures have been rendered necessary on account of burns.

REPORT OF CASES

A few instructive cases are briefed, with comment on the lessons learned:

CASE 1.—A 35 per cent scald in a 14 month old girl admitted in severe shock. Wide blisters with intervening "white leather" areas. Shock treatment and an occlusive pressure sulfathiazole emulsion dressing within four hours of the accident. Excellent recovery from shock. First redressing on the sixteenth day, when the superficial burns were found healed and the deep areas obvious (fig. 1). The sloughs were surgically removed and covered with skin of 0.008 inch thickness from the opposite side of the child's abdomen. Second redressing ten days (fig. 2) later with complete graft take, and child discharged three days later.

This case, in our opinion, exemplifies ideal "timed" treatment of a severely burned patient with a minimum period of morbidity. Early skin coverage, moreover, anticipated and so prevented the onset of exhaustion due to nitrogen imbalance.

CASE 2.—Circumscribed, obviously deep burn of the thigh 8 by 6 inches in a man when a motor car engine was pushed against the thigh in an accident. Treated as an outpatient and sent in for grafting on the thirty-fifth day. Placed in occlusive sulfathiazole dressing and grafted four days later with complete take. Discharged fourteen days after grafting with complete healing.

This would have been an excellent case for immediate primary grafting. The patient might then have been in the hospital only fourteen days from the time of burning until complete healing. There was a lapse of thirty-five days in "timing."

CASE 3.—A 55 per cent extensive deep burn of the abdomen, thighs and legs of a man from burning clothing. Remarkable recovery from shock and toxemia. In excellent physical condition from the fifteenth to the thirtieth day, with subsequent progressive decline from inanition and hypoproteinemia. Because of extensive slough, grafting was deferred until the fifty-fifth day. Further grafting on the sixty-ninth day, with death three days later from chronic protein loss.

We believe that this patient might have lived if operative removal of burn slough and the application of grafts had been instituted about the fifteenth day and carried on progressively while the patient was still in good condition. Such a case also would now receive the high protein instillation into the digestive tract, as recommended by Charles Lund and his associates at the Boston City Hospital.

CASE 4.—A 30 per cent deep flame burn of the abdomen, thigh and lower leg of a 23 month old boy. Occlusive sulfathiazole pressure dressing routine from the start, but grafting delayed until the third redressing (fig. 3) on the thirtieth day because of the extent of the burn and the depth of the slough. The thigh and lower leg were completely covered with 0.008 inch skin from the mother's buttock and the abdomen with 0.008 inch skin from the child's back, in one operation. Definite improvement in the child's condition. At the fourth dressing, on the fortieth day, the child's skin had taken completely on his abdomen and the mother's skin about 80 per cent on the thigh and leg. This will be redressed at ten day intervals and the thigh and leg regrafted with the child's own skin, if and when the mother's skin disappears.

An example of extensive skin coverage at one operation using autodermal and isodermal grafts. This is a recent case; we are consequently unable to report a final result.

CONCLUSIONS

1. Skin grafting of the burned area at the earliest possible moment is one of the chief aims in burn treatment. Such a procedure minimizes protein loss, prevents contractures and maintains morale.

2. An occlusive pressure dressing with a 5 per cent sulfathiazole oil in water emulsion, timed at infrequent intervals, has been helpful in achieving this result.

3. Delayed primary skin grafting between the tenth and fortieth days is the usual technic. Occasionally immediate primary skin grafting may be indicated.

4. Isodermal grafting has a limited but perhaps valuable applicability.

5. Under the occlusive pressure dressing routine infections are seldom bothersome and do not delay grafting.

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THE LATE PLASTIC CARE OF BURN SCARS AND DEFORMITIES

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The enormous increase in the number of burns of all types, caused by all sorts of agents, which are the direct result of waging war on land, on the sea and in the air will necessarily increase the number of burn scars, many of which will eventually have to be treated by plastic repair.

The status of the modern methods of burn treatment in all its phases has been considered in the preceding papers of this symposium. In completing the symposium the late plastic care of burn scars and deformities is dealt with, and in preparing this contribution I have drawn freely from articles which I have previously published on the treatment of scars of various types.

The earliest paper of importance which appeared in the United States on burn scar contractures and the innumerable subsequent deformities was written by Thomas D. Mütter, professor of surgery in Jefferson Medical College, Philadelphia, and was published more than a hundred years ago, in July 1842, in the *American Journal of the Medical Sciences*. His remarks on burn scars and the methods of handling them by operative procedures are well worth while reading today by any one interested in the subject, and some of his procedures are good practice still.

With the newer methods of treating burns, which are designed to eliminate infection and prevent the loss of serum and in which early skin grafting or flap shifting is done to induce healing, the occurrence of objectionable scars and of subsequent deformities due to scar contractures should be much less common than heretofore has been the case. However, in spite of these new methods burn scars still occur, and contractures may still form in those instances in which the full thickness of the skin and various depths of the underlying tissues have been destroyed.

The vast majority of burn contractures, and the deformities caused by them, must be treated by operative methods, and there is little that is new in the procedures which have been found most effective in dealing with them.

Burn scars and burn contractures are probably more consistently botched than any other group of cases, and this is largely because they are deemed simple and are attempted by nearly every surgeon in whose hands they may happen to fall or to whose service they may be admitted. The care of these contractures should be only in the hands of surgeons skilled in plastic repair, who have a thorough knowledge of how to deal with scar or scar infiltrated tissue and who understand the possibilities of its utilization.

It is a sound plastic principle that when scar tissue is present it should be completely removed before attempting repair by suture, by skin grafting, by flap shifting or by flap rotation. In many instances, however, it is obviously impossible on account of the size of the scar and the situation to excise it completely and carry out any of the procedures just mentioned. In these cases scar tissue can and should be utilized in accomplishing the final restoration.

The surgeon who is inexperienced in the handling of scars will frequently operate early on burn scars of all types, apparently not realizing that nature assisted by massage and physical therapy, and sometimes by carefully given x-ray or radium therapy, will in the course of months materially change the character and appearance of the scar. My own practice is to wait until at least six months have elapsed after healing is complete before operating; in other words, until the scar is matured. In this way useless operations are avoided and procedures which would have been required had the operation been done early are frequently found unnecessary. Furthermore, if it is advisable to utilize scar or scar infiltrated tissue in the final repair, the circulation is better, the scar is softer and suitable areas may be shifted as flaps with considerable advantage. It has been my observation that the employment of scar tissue in the final repair is not utilized nearly as often as it can and should be.

All types of scars may follow burns, and the character of the scar depends on the depth of destruction, on the extent of the burn and the location, and on the rapidity and character of the healing. Scars may be unstable, smooth (skin level), depressed, adherent contracted and keloidal in type. More than one type of scar may be present on the same patient following the healing of the original burn. Any one or all of these may cause deformity and loss of function. Pain may also be a symptom in any type of burn scar. The deformities caused by burn scars range from very slight skin defects and contractures to the most horrible distortions of all parts of the body.

The power of scar contractures is very great and may cause a variety of unusual deformities, for exam-

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ple drawing the shoulders toward each other, or completely dislocating joints.

In burn contractures of the neck, chest and chin the shape of the mandible is often distorted, and the full development of the bone is checked by scar pressure. The alveolar process is frequently turned outward and the teeth forward and even downward in severe cases. Long bones may be bowed, and joint surfaces may be angled. In certain old extensive burn scars with adhesions, for instance between leg and thigh or thigh and pelvis or the arm and chest, it is advisable to do the relaxing operation in stages, as shortening of muscles under contracted scars and also shortening of vessels and nerves must be thought of. The friability of bones due to the atrophy of disuse is also of importance.

The location and extent of the scar modify prognosis and treatment. In the late plastic care of burn scars and deformities a number of methods may have to be employed, either singly or in combination, as there is no one procedure of choice which is applicable for the relief of all types of cases.

The most important procedures are excision with closure by sutures; excision with skin grafting; excision with lateral relaxation incisions in adjacent normal tissue, advancement to cover the original defect, with skin grafting of the relaxation defects; gradual partial excision with closure; the use of relaxation incisions in the scar itself with skin grafting; the use of Z-plastics; the use of skin grafts of various types, and the use of pedicled flaps. All of these maneuvers must be understood by the surgeon doing this work, and his judgment should be good enough to select the method, or combination of methods, which promises the best results in each individual case. These methods will be considered briefly, and then the various types of scars and the procedures which in my experience are most suitable for their correction in various regions will be taken up.

In my own operative work on burn scars I have found it advantageous to mark out with 5 per cent brilliant green in 95 per cent alcohol all the incisions to be made. This is most helpful in planning relaxation incisions and procedures such as Z-plastics, in tissue made up of scar or strongly infiltrated with scar. When scar is incised, it is quite remarkable in certain instances to note the retraction of the wound edges and, where scar flaps have been released, to note the extraordinary changes in line of pull into unexpected directions.

OPERATIVE METHODS OF TREATING BURN SCARS AND DEFORMITIES

Excision.—When it is possible, a burn scar which lends itself to such treatment should be excised completely and the wound closed in layers. If, after excision, closure is not possible, even with undercutting, then the defect may be skin grafted with the selected type of graft.

Another method which is very helpful, the principle of which was well known in the time of Celsus, is that, when the scar has been excised and the wound cannot be closed by suture, to make relaxation incisions in the normal tissue beyond the defect on one side or both down to the deep fascia if necessary and then undercut the tissue, making a double pedicled flap. This flap may then be immediately advanced to cover the defect left by excising the scar or, if circulation is doubtful, may be sutured back into its original bed to be used later as a delayed transfer double pedicled

flap. The method may be modified by forming the double pedicle; delayed flaps, before the scar is excised, and then, when the circulation of the flaps is assured, excise the scar and immediately shift in and suture the flaps. When the flap or flaps are shifted in finally and sutured over the original defect, the wounds in the normal tissue are grafted, to hasten healing.

Another method, which will sometimes give relaxation and avoids further incisions through skin is, after undercutting outward on each side as much as necessary, to make an incision from below, parallel to the length of the wound on each side, at the outer margin of the undercut area up through the subcutaneous fat without cutting through the skin, and then if relaxation is sufficient close the original wound with sutures.

Gradual Partial Excision with Closure.—The first paper on gradual partial excision was published in 1915 by H. Morestin. This most useful plastic principle is a progressive reduction in the size of a scar by successive excisions, with closure. The method depends for its success on the fact that the skin beyond the lesion has a tremendous stretching capacity, especially when the stretching is done slowly.

After determining the amount of tissue to be removed, the area is marked out. The pattern is usually made in the shape of an elongated ellipse whose long axis, in order to facilitate closure, is in the most advantageous direction; but any shaped area may be removed as long as the resulting defect may be closed by sutures. The marked out area should be cleanly excised with a sharp knife down to normal tissue, care being taken to avoid unnecessary injury to the wound edges. Some undercutting may be necessary. All hemorrhage should be checked and the wound closed with deep sutures of fine white waxed silk or cotton, to take off tension, and on-end mattress sutures of horsehair or nylon to approximate the wound edges.

After a suitable interval, several weeks to several months, depending on the situation and when the surrounding skin has stretched sufficiently, the process is repeated and again repeated at suitable intervals until the scar has been completely removed and a narrow line scar remains. The successive excisions should ordinarily be made inside the area of the scar until the final step is reached, when it may be necessary to encroach slightly on the surrounding tissue. Proceeding in this way, one finds that the final narrow scar will be little if any longer than the long axis of the original scar. The technic is simple, and there is little danger in the procedure. Before the primary and secondary operations, preliminary massage to soften and loosen tissues is advantageous. The amount which it is safe to excise at any one operation varies with the elasticity of the skin around the scar.

If carried out properly, gradual partial excision will result in a narrow scar, which may be either straight or curved or angled depending on the way in which the excisions have been made. Often it can be managed so that the final scar will lie in a natural fold. Occasionally in extensive scars it is impossible to remove it all by this method, but the size of the scar may in this way be reduced sufficiently to make a simple plastic procedure possible.

Relaxation Incisions.—As I have said before, it is a good plastic principle to excise all scar tissue completely before making a repair, but in many instances it is not practical to carry this out, and when this is the case relaxation incisions in the scar itself may be essential in order to bring about a satisfactory result.

The purpose of relaxation incisions through scar tissue is to relieve scar tension which may either interfere with growth or with function or with permanent healing or with all of these. Relaxation incisions have been most helpful to me in dealing with large contracted thick adherent scars, and also with unstable scars which are difficult to heal and which when healed frequently break down.

The contracted portion of the scar is put on the stretch, the most binding area is located and the proposed incision line is marked out transversely across that portion of the scar. If several areas are to be relaxed, they also are marked out. Then the scar is divided completely through its full depth down to normal tissue and if possible out to normal tissue surrounding the scar. Deep attachments are loosened. Relaxation incisions may be single or multiple. They may be straight, curved or angled. If the margins of the incisions are tight and the underlying tissue tends to bulge out into the wound, the incisions may be lengthened or the margins may be relaxed by radiating incisions until they are slack. On the shaft of an extremity the relaxation incisions are ordinarily made parallel with the length of the limb, but in other large scars the incisions are made across the scar pull in any needed direction.

In making relaxation incisions the tendency is always to underdo rather than to overdo, and it must be borne in mind that the relaxation must be as thorough as possible without interfering with the circulation of scar areas between the incisions.

After relaxation incisions have been made, the tissues in the defects may be ready for immediate grafting or it may be necessary to allow a few days to elapse in order to improve the circulation and stimulate granulations before grafting can be done. All types of grafts may be used to heal the defects made by the relaxation incisions. In order to conserve skin I frequently employ small deep grafts, but split (thick Ollier-Thiersch) grafts or whole thickness grafts may also be used, depending on conditions.

In very large scars one may have to proceed in stages, gaining as much as possible each time. The first incisions may be done, the defects healed by skin grafting, and later further relaxation in other portions of the scar may be carried out in the same way. After several months have elapsed, other relaxation incisions may be done if necessary, sometimes across those made previously or in the direction not indicated at the first operation. In the thick heavy scars after relaxation incisions have been made it will be found that in time the relaxed scar tissue, although it may originally have been hard and rigid, will soften and change its characteristics so that it will be usable in the final result.

Z-Plastics.—In the contracted scar where there is a prominent scar band, bridge or web, or a scar groove, with fairly lax tissue on each side, the Z-plastic is of great use and up to the present time has been used extensively by only a few surgeons. The name is given to the method because the outline of the incision is roughly that of a Z. The maneuver will be considered here in its simplest form.

With the scar bridge or groove under tension, the proposed incisions are marked out. The central line of the Z is laid down along the most prominent part of the bridge in the selected length. Then the arms of the Z, which are of the same length as the central line, are laid down at each end of the central line on

the opposite sides and at an angle of about 60 degrees to it, and they should be parallel to each other.

When the incisions are made along these lines, two broad based triangular flaps are formed whose bases are opposite each other. These flaps are undercut and completely mobilized. They are then transposed so that their outer margins approximate and the tips of the flaps touch the outer corners of the bases of the opposite flaps. The edges are then sutured with interrupted or on-end mattress sutures of nylon or horsehair. The sutured wound is also Z-shaped, but the Z is turned through about 90 degrees, is elongated, and the central line of the original Z lies transversely across the scar pull. The actual amount of relaxation varies between 50 and 100 per cent of the length of the central line of the Z.

By Z-plastics, scar contractures may be relieved by the utilization of scar tissue. The success of the method depends on the presence of slack tissue on each side of the scar band or groove. By its use, in many instances, skin grafting or flap shifting may be avoided, and it is one of the most generally useful plastic procedures.

Skin Grafts.—A skin graft is a free transplant. The technic of obtaining the various types of skin grafts is so well known that I will not go into it here. Grafts may be grouped into thick grafts, which include small deep grafts, and whole thickness grafts (Wolfe-Krause grafts), half thickness or split grafts, which are really thick Ollier-Thiersch grafts, and thin grafts, which include true Reverdin grafts and true Ollier-Thiersch grafts, both of these grafts being composed of the epidermis with the tips of the papillae of the corium. In other words, the tiny Reverdin and the larger Ollier-Thiersch grafts are as thin as they can possibly be cut.

Another type of skin graft, which is sometimes used to fill out depressed scar areas, is the cutis or dermal graft. It contains all the components of the skin except the epidermis. The size of the graft required is marked out on the donor surface, and then every particle of the epidermis with the papillae of the corium is removed. The remaining portion of the corium is either completely dissected away from the fat or a small amount of fat may be left attached, and this tissue is then used to fill out the depressed area. It is usually placed in an undermined pocket and should be spread out and held with sutures in position in the bed prepared for it. The process may be repeated in a few months if the filling out process has been insufficient.

The type of graft used after excision or after the relaxation of burn scars depends on the area to be grafted or varies with the choice of the surgeon. In my work I seldom use either the Reverdin graft or the true Ollier-Thiersch graft in covering operative defects made in burn scars, as these grafts are too thin for stable repair.

In many clinics the so-called split graft or dermatome graft, which is a thick Ollier-Thiersch graft, is the only type of graft used for covering practically every raw surface, either granulating or freshly made. This is unquestionably a very useful type of graft and I frequently use it, but it should not be used on every occasion even if it can be easily cut with a Padgett-Hood dermatome. I find small deep grafts most useful especially in grafting relaxation incisions in regions covered by clothing, and I also frequently use whole

thickness grafts on such areas as the face, the hands, the feet and in other exposed positions.

Skin Flaps.—A skin flap is a mass of tissue which is attached at some portion of its periphery or base by a pedicle through which it receives its blood supply, and it can be shifted only as far as its pedicle will allow.

A skin flap is made up of the whole thickness of the skin with as much of the subcutaneous tissue as may be desired and is used for the repair of those areas which, in order to obtain a resistant elastic healing, require thicker tissue than simple skin grafting will supply.

There are three basic methods of using flaps, and innumerable modifications of each method:

1. The French method of advancing or sliding flaps from adjacent tissue after undercutting. In this there is little if any twisting of the pedicle.

2. The Indian method, in which the flap is obtained from neighboring tissue and is placed in its new bed by more or less twisting or rotating the pedicle.

3. The Italian method, in which the flap is obtained from a distant part, say the arm. The pedicle may or may not be twisted.

Flaps may have a single pedicle, or the pedicle may be double. The flap may be transferred to its new bed immediately after it is raised, or the transfer may be delayed, which means that in order to assure its circulation some time may be allowed to elapse between the formation of the flap and its transfer. The flap may be placed directly on the defect prepared for it, in one stage either at once or after a necessary delay. The transfer may be in more than one stage in those instances in which, on account of the distance of the defect from the tissue chosen to fill it, it becomes necessary to grow that tissue into another part and subsequently carry it on that part to the defect. Flaps may be carried in this way almost anywhere on the body. The area from which a flap is raised may be closed by sutures, or, if this is not possible, the defect may be skin grafted.

There are certain scars, which may be excised and which cannot be closed by suture, and where, for instance on the face, a skin graft would be unsatisfactory on account of color or the possibility of subsequent pigmentation. In these cases the repair may often be most satisfactorily made by the rotation of flaps of skin and the required amount of subcutaneous fat from adjacent tissue.

In the repair of any part which has been lined with skin or mucous membrane by means of a pedicled flap, it is necessary in order to prevent future scar contracture to line with epithelium the portion of the flap which is to replace this part. In order to accomplish this the flap may be folded on itself in one of several ways, or the portion to be used may be grafted with skin or mucous membrane, as the requirements may be.

The tubed flap is probably the most generally used of the delayed transfer double pedicled flaps. It was devised by Filatoff in 1916 and independently by Gillies in 1917. The method of its formation is well known.

TYPES OF SCARS

"Pain" is a symptom which may be found in every type of scar but which fortunately is fairly unusual in old scars. Burn scars may be painful, and the pain in certain instances is sufficiently severe to cause loss of function or to incapacitate the patient even though the scar may be quite small. Larger scars of all types may also be painful, but in these cases it is often possible

to demonstrate localized points of hypersensitiveness, either single or multiple. The pain may be caused by inflammatory changes, by scar pressure on nerves or by the formation of neuromas on the small skin nerves. I have seen cases in which the pain in the scar increased in intensity as time went on, but more often the pain tends to become less severe with time and ultimately may cease as the scar matures and softens, so a period of observation is advisable before radical treatment is indicated. The treatment is simple and effective. If the painful scar is small, it should be completely excised and the wound accurately sutured. In the larger scars the painful point or points should be carefully plotted out, and then these areas should be completely excised down to normal tissue, preferably in the shape of an ellipse, and the wound closed with sutures. Sometimes a single painful point may cause the entire trouble in a large scar, and complete relief will follow excision.

Depressed Scars.—Depressed scars following burns are usually the result of third degree burns in which there has been considerable loss of tissue. The basis of all methods of dealing with depressed burn scars, when excision is possible, is excision with closure of the soft parts in layers to fill out the defect.

Some depressed burn scars are adherent to underlying tissues such as muscle or bone and, besides being objectionable in appearance, cause pain, deformity and interference with function. If possible these scars must be completely excised and the defect repaired by closing the soft parts in layers or by flap shifting. When the scar is long and narrow and depressed and adherent, as they are sometimes seen on a leg or arm following a steam radiator burn, the deeper portion of the scar may be used as a buttress over which skin and subcutaneous tissue is closed. This is the method of Poulard, and I find it most useful. The scar is outlined with an incision, which is carried down to normal tissue, and the margins are undercut. The epithelial surface of the scar inside the outlining incision is carefully dissected off, and then the tissues beyond the scar, which have been undercut sufficiently, are advanced over the scar buttress with deep sutures of waxed white or black fine silk or cotton, and the skin is closed with on-end mattress sutures of 4.0 or 5.0 single filament nylon, or with horsehair. This will eliminate the depression and result in a narrow unobjectionable normal level scar.

After the excision of a depressed scar, which can be closed by suture, it is sometimes necessary, in order to fill out the depression, to roll in flaps of adjacent subcutaneous fat whose pedicles are either below or are attached to the skin itself. These are advanced and sutured into proper filling position, and then the skin is closed.

If a depressed scar is large and cannot be repaired after excision by closure of the adjacent soft parts, it may be necessary to bring in a pedicled flap of skin with sufficient subcutaneous fat either from adjacent tissue or from a distant part to fill the defect. Another method is to make a delayed transfer double pedicled flap of skin and subcutaneous tissue and shift the tissue from one or both sides of the defect into the defect, thus filling it out. If the lateral defects cannot be sutured, a split or whole thickness graft may be used. If the depressed scar is large, soft and movable it may be improved by gradual partial excision, by rolling in pedicled flaps of adjacent subcutaneous fat, by undermining and inserting a fat and fascia graft or by inserting a dermal graft. In suitable cases autogenous carti-

lage or preserved icebox cartilage cut to pattern or diced, as suggested by L. A. Peer in 1943, may be used to fill out a depressed scar of reasonable size. In my experience the use of foreign bodies or paraffin for this purpose is contraindicated.

Extensive smooth (skin level) scars may follow burns on any part of the body and, when they are soft and movable, are frequently best left alone, especially if they are in inconspicuous situations. Should removal be desired, one or more of several methods may be employed: excision followed by skin grafting; the shifting in or the rotation of a flap of skin and subcutaneous tissue; gradual partial excision.

Large, thick contracted adherent scars are a common type and may present difficult plastic problems. They are often of long duration and may vary in thickness from that of the normal skin to 2 to 3 cm. or more. They may be found in any location on the body and may be completely healed, the surface, especially in the thickest portion, being covered with a scaly horny material, and these areas tend to crack open from time to time. In other instances, even after many years, there may be one or more chronic ulcerated areas on the most contracted portion of the scar which have never healed, and sometimes malignant degeneration may take place in these areas.

Contracted scars often seriously interfere with function and in the growing period check development or distort the involved portion of the bony framework. If they occur after the growing period has passed, then the lack of function caused by the scar contracture on such bones as the humerus or femur will sometimes cause atrophy from disuse.

These scars may be very extensive, and it would be poor surgical judgment in many instances to attempt complete excision because of the impossibility of obtaining sufficient skin to cover the defect made by the excision. In these cases the use of relaxation incisions is the method of choice as the relaxed scar between the incisions, when it changes its character, can be utilized in the final healing.

Unstable scars are those which usually follow extensive loss of the whole thickness of the skin and are most frequently found in cases in which the tissue losses involve the entire circumference of a limb or a large area over the vault of the cranium. These are in most instances too extensive to consider complete excision. The healing in the majority of cases has been by cicatrization, but sometimes the condition follows inadequate or unsuccessful grafting.

The scars are paper thin and are very unstable and may be entirely healed one day and, without apparent cause or following very slight trauma, on the day following may ulcerate in many places. The history is slow healing and then breakdown, and this may go on for years, during which time the patient may be completely incapacitated.

The first paper on the use of relaxation incisions followed by skin grafting in the treatment of unstable scars was published by J. S. Davis in 1917. It has been my experience that this is the only satisfactory method of dealing with this type of scar.

The method is as follows: The incisions should be marked out and should extend the entire length of the scar into the normal skin above and below it and should expose normal tissue even if necessary to go through the deep fascia. Many of these unstable scars are on legs and arms, and the incisions in these cases should not be made immediately over bone. For a leg

or an arm or thigh, three incisions running parallel to the length of the limb are usually sufficient. The incisions may or may not go through the ulcerated areas. After the relaxation incisions have been made, the ulcers on the scar tissue between the incisions rapidly heal, and the scar itself changes its characteristics and becomes stable and strong. The wounds made by the incisions may be grafted immediately if the tissues are ready for grafting; otherwise after a few days, when the granulations have formed, the grafting may be done. I use small deep grafts or thick Ollier-Thiersch (split) grafts for grafting the relaxation defects, depending on the conditions.

Keloidal Scars.—It is difficult to differentiate the thickened, hard, red, tender, itching painful type of keloidal scar, which not infrequently follows burns, from a true keloid, and doubtless many of them are true keloids. Be that as it may, this type of scar sometimes follows burns, particularly those caused by chemicals, and it is a particularly difficult type to treat. Up to this time no specific treatment has been devised. Sometimes carefully given x-ray or radium therapy will blanch out and soften these scars and make them more comfortable, but frequently this type of treatment is unsatisfactory. These scars are often found on the backs of the hands, on the ears, on the cheeks and on the neck, the chest and the trunk. They usually follow burns which have destroyed the full thickness of the skin and which have been slow in healing. Why they occur in some burns and not in others, or why they occur in some areas on the same patient and not on others, although the healing has apparently been the same, I do not know. If the keloidal scars are not causing loss of function, time and plenty of it should be allowed to elapse before attempting any operative procedure.

In keloidal scars of reasonable size, for years I have been giving preliminary irradiation and then by the process of gradual partial excision removed the scar, keeping the sutures always in the scar area and in time finishing up with a comparatively narrow scar. Irradiation is also given each time after the sutures have been removed. Whether the preliminary irradiation does any good or not is a matter of question, but I have continued to use the method with fair satisfaction. In large areas on the face and hands excision with skin grafting or flap shifting may be necessary, but the results cannot be counted on. Complete excision with closure is usually followed in the true burn keloid by a bigger and better keloid. Removal by the endotherm followed by irradiation is sometimes done, and successes have been reported. Capillary drainage is usually unsuccessful. In fact, there is no completely satisfactory treatment of this type of scar.

REGIONS

As burn scars and deformities are found on all parts of the body, it might be helpful to consider different regions and briefly to mention methods which might be useful in the treatment of some of the lesions in these regions. As these scars may vary in each case and in each location, the methods are offered simply as suggestions, as each case must be studied out individually as to the best method of repair. In all of these operative cases much help can be obtained by the proper use of suitable immobilizing dressings and appliances, which should secure the part in the desired position in comfort and at rest.

Head.—Scalp: Burn scars of the scalp are at times very difficult to deal with. If the scar involves a large part of the scalp, is thin, is unstable and is tightly stretched on the skull, sometimes "tunnel grafts" of whole thickness or split thickness skin are effective in starting lines of stable skin. At other times relaxation incisions, with grafting of the defects thus made, promise the best result; in other instances removal of the scar with skin grafting, either split or whole thickness, depending on the conditions. When the scar involves only a portion of the scalp and a considerable amount of hair bearing skin remains, it is often possible to shift pedicled flaps of this hairy skin into strategic areas of the scar and thus make it easier to cover the hairless scar with a better arrangement of the hair.

In the midst of extensive old burn scars of the scalp, masses of closely adherent necrotic bone may be found. In these cases the bone should be removed down to normal bone or, if it includes both tables, down to the dura, and then the repair should be made. A slower method is to bore numerous holes through the bone to allow the formation of granulations and then, when the granulations have formed, to graft.

Forehead: Contracted burn scars of the forehead, with or without scalp involvement, will often cause abnormal raising of the eyebrows and even of the eyelids themselves. In order to overcome this, a relaxation incision completely through the scar is made at the selected level transversely across the forehead from one temporal region to the other, the tissues are loosened and into the defect thus made a single whole thickness graft or thick split graft is sutured. In suitable cases the scar may be completely excised and the defect filled by a whole thickness graft or a thick split graft. If a scar in the temporal regions is hairless and unsightly, a flap of hair-bearing skin may be brought forward successfully from the scalp back of the ear to relieve conspicuous baldness in front of the ear.

Eyelids: Frequently ectropion of one or both eyelids, on one or both eyes, due to burn scar contractures occurs. In my experience, thin hairless whole thickness grafts are to be preferred, either from the normal upper lid, from the inner side of the upper arm or from the prepuce. Thick split grafts may be used, however. Adhesions should be made between the lids at several points to put them on the stretch before the grafts are sutured into position. Sometimes a flap from the temporal region or forehead is to be preferred for the repair of the lower lid. Eyebrows and eyelashes are often destroyed by burns and cause pronounced disfigurement. After the contractions are relieved these can be replaced by transplanting free grafts or pedicled flaps of hair-bearing skin by special technics. The complete restoration of eyelids and also the formation of sockets for artificial eyes is necessary in certain severe burns, and this may be accomplished by the use of suitable flaps and grafts.

Ears: Burn scars of the ears vary greatly. The cartilaginous framework may be practically intact and covered with a thin adherent scar. In other instances there may be every grade of cartilage destruction. Sometimes the lobule of the ear is fused with the scar on the adjacent portion of the cheek. The cartilaginous framework may be completely embedded in scar and closely adherent to the skull. In some instances simple relaxation with Z-plastics or skin grafting may be all that is required, but in others the complete recon-

struction of the external ear is required, with cartilage transplantation, skin grafting and flap shifting as may be necessary in each case. Keloidal scars are not uncommon on ears and, after considerable time has elapsed without improvement, should be excised and accurately grafted with split thickness grafts.

Cheeks: Contracted burn scars of the cheeks are frequently found, and often the scar will involve the eyelids and mouth as well. In repairing such deformities the contracted scars must be completely removed in order to relieve the contractures, and the repair made by means of large whole thickness grafts or of flaps from a distant part or by the rotation of skin from the neighborhood if such skin is not infiltrated with scar. Usually when these contracted scars are excised there is a defect of varying depth left and it is inadvisable to use a split graft, as it is not thick enough. Sometimes the whole cheek must be reconstructed, and in these cases a lining must be provided for the flap with which it is done.

Nose: Many deformities of the nose result from burns, and the repair presents a considerable problem, as frequently the skin of the forehead and adjacent cheeks is also involved in the scar. In many instances a forehead flap, either lined or unlined as may be necessary, presents the best means of making the repair, as the skin of the forehead matches the nose in color quite well. Sometimes a flap from the arm is prepared and transferred, or a flap from the abdominal wall is grown onto the hand or wrist and then brought up to the nose. When flaps are unnecessary I frequently use a free graft from the skin on the back of the ear, as this matches in color better than the skin from other portions of the body. Cartilage may also be necessary in repairing deformities of the nose due to burns, and this material may be autogenous rib cartilage, which is to be preferred, or preserved icebox cartilage may prove useful. The cartilage may be implanted into the flap some time before it is turned down on to the nose, or it may be put in after the flap has grown into its new position.

Mouth: The most common deformity of the mouth due to scar contracture is ectropion of the lower lip, and this is usually associated with burn contractures involving the chin and neck. The relief of this type of contracture calls for either whole thickness grafting or, in suitable cases, thick split grafts or flap shifting. Another deformity caused by scar contracture is the so-called "pucker string contracture" around the mouth. When the patient opens the mouth there may be one or two or even three lines of scar pull running from the nasolabial folds on each side downward and across the chin, and frequently this scar also involves the upper lip. The best procedure to relieve this condition is by Z-plastics at strategic points. Another deformity of the mouth due to burn scar contracture is microstomia. In some instances the opening between the lips has contracted down to pencil point size, and the problem of feeding the patient is a serious one. In these cases the opening is enlarged along the normal lip level to a little more than normal mouth size, the mucous membrane is sewed to the skin or remains of the vermilion border, and the angle of the mouth on each side is made with a flap of skin or mucous membrane.

In cases in which the burn has destroyed the angle of the mouth on one side and the adjacent portion of the cheek and there is a contracted scar, it is neces-

sary to reconstruct that portion of the cheek with a lined flap and incidentally to make that side of the mouth of normal size. Sometimes it is necessary to reconstruct both lips as well as the soft parts of the chin. In such cases lined flaps must be brought in to furnish the required tissue. Scar contractures involving the angles of the mouth, displacing them either too high or too low, may be corrected by Z-plastics.

Remarkable illustrations of the use of double pedicled flaps of scalp in the repair of burn defects of the face have been shown, but to my mind in most instances the procedure is poorly thought out.

Neck.—Burn contractures of the neck are quite common. They may be massive and obliterate the entire contour of the neck and chin, or they may be scar bands or bridles. Frequently the angles of the mouth, the chin and the lower lip are also involved in these scars. In the massive type the scar should be excised as thoroughly as possible, the head extended and the defect filled with a whole thickness graft, a thick split graft or with a flap, often from the back. Sometimes a broad double pedicled flap may be slid up from the lower part of the neck or the upper part of the chest. It is necessary sometimes in these cases to relieve the condition in stages. In the scar band type, Z-plastics offer the best solution, and by the use of this method skin grafting or flap shifting may be avoided.

Trunk.—Burn scars and contractures are quite common on the trunk and vary greatly in their type. The extensive contracted scar which involves the anterior part of the chest and abdominal wall frequently prevents the patient from standing erect. The shoulders may be drawn toward each other, the breasts may be drawn close together, and the patient is held in a round shouldered position. In these cases the problem is not the removal of all the scar area, which in most instances is impossible (although some of the most objectionable areas may be excised), but to produce relaxation so that the body may assume an erect position without hindrance. Relaxation incisions should be made where necessary and the defects grafted with small deep grafts or any other type of graft selected by the surgeon, a considerable portion of the scar being utilized in the final repair. If the scar is comparatively small it may be either completely excised and the wound closed or excised with grafting, or, in suitable instances, gradual partial excision is the method of choice. It is not unusual to have a scar drawing the breasts toward each other. In some of these and in other areas, Z-plastics are effective. We quite often see keloidal scars on the back, the chest and trunk, and these should be treated by methods already mentioned. Sometimes unstable scars may be found on either the front or the back of the trunk, and in these cases relaxation incisions with grafting is the method of choice.

Upper Extremity.—*Axilla:* Frequently associated with burn scars of the trunk one finds the axillary regions also involved in the scar contractures. The involvement of the axilla may vary between a shortening of the anterior or posterior axillary fold to complete obliteration of the axilla and sometimes the fusion of the arm to the chest wall. When these adhesions are of long duration, separation of the arm from the chest wall must be done carefully as the humerus, through atrophy of disuse, may become brittle and, if moved too rapidly or without great care, may be fractured by the manipulation.

In the reconstruction of the axilla, small deep grafts should not ordinarily be used, but either large split grafts or whole thickness grafts or, if suitable adjacent tissue is available, pedicled flaps should be used. Tubed flaps are also very useful in certain cases. In certain webs involving the axilla, Z-plastics are of great use.

Arms and Hands: Many burn contractures are found on the arms and hands. The joints may be involved and immobilized in abnormal positions. The contractures may be as constricting bands or grooves in the midst of reasonably good skin, or the whole extremity may be involved and function completely lost. Many of the contractures around joints cause flexion deformities, and on the hands hyperextension with subluxation is often seen. Around joints the scar must be removed and replaced by a flap or graft as seems best. All types of flaps may be used. On hands, one frequently finds the part literally "frozen," there being practically no voluntary motion of any kind possible. Sometimes dense keloid growths will form on the hands. All of these problems are difficult to overcome. Excision with replacement with flaps of various kinds or with whole thickness grafts or thick split grafts must be done. Special splints designed for the special cases are of great assistance and should be used when required. Fingers and adjacent portions of the hand may be completely destroyed by the original lesion and the stump covered by a thin, painful scar. In such cases excision and covering with a flap or graft is indicated and, if possible, the readjustment of the stump for practical use.

Unstable scars are not unusual on the arms and forearms. Here, as always where this type of scar presents, thorough relaxation incisions with skin grafting is the method of choice. In relaxing scar bands on the entire upper extremity, including the hand, Z-plastics are of great use.

On the palms after excision of scar, whole thickness grafts or thick split grafts should be used. When flaps are used, care should be taken that there is only sufficient subcutaneous fat for the purpose required and that the flap fits fairly accurately.

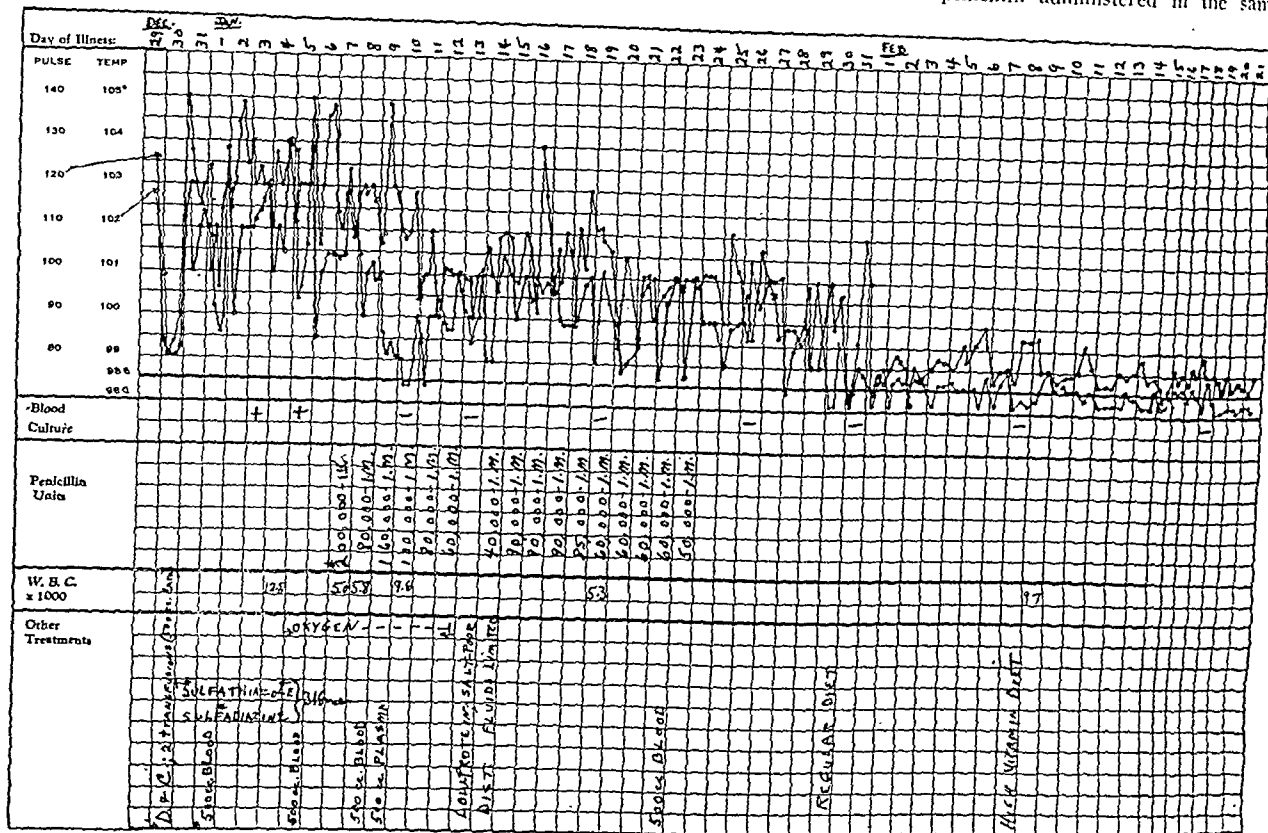
Sometimes the reconstruction of tendons is necessary in old burn scars on the hands. Skin and subcutaneous tissue must first be supplied and then, through this, tendon reconstruction may be made in suitable cases.

Lower Extremities.—Burn scars and numerous consequent deformities are often found on the lower extremities. These contractures may cause flexion of the thigh on the abdomen and the leg on the thigh and often cause complete loss of function. In some of these cases areas are found in the midst of dense scar which have never completely healed. Often the scar involvement will extend from the chin to the knees. I have found that relaxation incisions with grafting is by far the most useful and effective method of handling these scars. One should gain as much as one can at the first operation and later do further relaxation and more grafting. In this way the best ultimate results may be obtained. In dense old burn contractures in the popliteal space it is advisable to divide the scar transversely as deeply as is safe, then to apply traction by an orthopedic appliance and gradually stretch out the tissues, and then make the repair with a graft or flap. In this way the muscles, vessels and nerves which have contracted on account of position are gradually stretched without injury. Unstable scars on the lower extremity are also treated by long relaxa-

the patient was very toxic. The respirations were much increased and labored (40 to 60 per minute). She was extremely pale, and there was slight icterus of the scleras. The face was slightly swollen. She complained, however, only of pain in the left flank. The heart sounds at the base were just audible but were of fair quality at the apex, where a soft systolic murmur was heard. The rhythm was regular, the rate very rapid. There was dullness in both lower lung fields posteriorly, with patchy areas of bronchial breathing and bronchophony. Crepitant rales were also heard here. Abdominal examination revealed a slight distention, with pronounced tenderness and spasm in the left flank and costovertebral angle. The spleen was palpable 2 fingerbreadths below the left costal margin and was exquisitely tender. The liver was questionably palpable. Pelvic examination was essentially negative, except for a slight foul discharge.

whole blood. During the following two days the patient's temperature ranged between 101 and 105 F. and was spiking in character. She was no longer in shock. The blood pressure was 100/60. The pulse rate was 120 and no longer thready. On the afternoon of January 7 the patient's arms, anterior chest and lower eyelids were covered with petechiae, which appeared in showers. The eyegrounds did not show any embolic phenomena. On that day she became irrational and had four convulsions lasting about one minute each and occurring at two to three hour intervals. Sedation was obtained with soluble barbitol, and hypertonic dextrose solution was administered intravenously.

About half an hour before the fourth convulsion, penicillin was started intravenously (100,000 units in 1,000 cc. of cooled isotonic solution of sodium chloride). This was followed by another 100,000 units of penicillin administered in the same



Clinical course. * Penicillin started January 8 at 12:20 a. m. Patient had four convulsions in seven hour interval between permission and delivery of drug. A, 1,500 cc. of 5 per cent dextrose in saline solution intravenously. B, 1,500 cc. of 5 per cent and 1,500 cc. of 10 per cent dextrose in saline solution intravenously.

X-ray examination of the chest on Jan. 3, 1944 revealed evidence of consolidation of both lung fields extending out from the central areas.

Blood cultures taken on January 3 and 5 were positive for *Staphylococcus aureus*. Urinalyses taken during this period (all catheterized) showed persistent albuminuria, a trace to 4 plus, occasional to many red blood cells per high power field, specific gravity 1.007 to 1.012, and occasional epithelial cells. The blood was of type A, Rh positive, red blood cells numbered 3,120,000, hemoglobin was 75 per cent, 13 Gm., white blood cells numbered 12,800 with neutrophils 82 per cent, lymphocytes 18 per cent and mononuclears 2 per cent. The blood Kahn reaction was negative. The icterus index January 2 was 11. The blood sulfathiazole level was 12.8 January 7. On the 5th the blood urea was 13, creatinine 1.6. On the 7th the white blood cells numbered 5,050, with 85 per cent neutrophils and 13 per cent lymphocytes.

The diagnoses established at this time were *Staphylococcus aureus* septicemia, bilateral bronchopneumonia, peritonitis and toxic hepatitis.

Chemotherapy was stopped on January 5 and oxygen was administered, as well as another transfusion of 500 cc. of

manner. Both doses were given at a rate of 40 drops per minute. This was followed by 1,500 cc. of 10 per cent dextrose in isotonic solution of sodium chloride intravenously. Penicillin was continued intramuscularly, 20,000 units in 4 cc. of cooled isotonic solution of sodium chloride every three hours. Another transfusion of 500 cc. of whole blood was given on January 8 and 500 cc. of blood plasma was administered on the 9th. The temperature dropped to a normal level on the 9th but the pulse rate remained considerably elevated. On the 10th penicillin was reduced to 10,000 units intramuscularly every three hours. On the 12th the patient showed improvement clinically, becoming quite rational, and was now able to take fluids by mouth. The petechiae faded within forty-eight hours. The signs in her lung fields diminished, and oxygen was no longer necessary. The abdominal distention decreased; the liver was no longer palpable, but the spleen was still two fingerbreadths below the costal margin and tender. Unfortunately the supply of penicillin was finished on the 12th. At this time a peripheral and sacral edema developed and now a diastolic gallop was heard for the first time along the left sternal border.

On January 10 the white blood cells numbered 9,400, with 84 per cent polymorphonuclears and 13 per cent lymphocytes.

Blood urea nitrogen was 77, creatinine 1.8 on the 11th. Blood cultures on the 9th and 13th were negative. The icterus index was 11.3, serum bilirubin 1.3, blood protein 6.8 per cent, cephalin flocculation test 2 plus. January 12 urinalysis showed 4 plus albumin, specific gravity 1.020, urobilinogen positive in 1:20 dilution, negative in 1:40. An electrocardiogram revealed regular sinus rhythm, low voltage in all complexes, inverted T_1 interpreted as indicating myocardial damage. Chest x-ray examination on the 13th revealed congestion and exudative infiltration in both central zones and bases. No pleural fluid was seen, there was no change in the cardiac outline.

The patient was placed on a low protein salt free diet on the 13th and fluids were restricted to the preceding day's output. Only on January 10 did the urinary output fall below 1,000 cc. On the 14th a new supply of penicillin was received, and this was given intramuscularly 15,000 units in 3 cc of cooled isotonic solution of sodium chloride every four hours for five days and continued for five more days at the rate of 10,000 units every four hours. This course was completed on January 23. Another transfusion of 500 cc of whole blood was given on the 22d. The edema had almost completely subsided by this time except for a slight amount over the dorsal surface of the feet. The blood urea had fallen to 11. The abdomen was now soft and the spleen, while still palpable, was only slightly tender. There were still signs of a resolving pneumonia in both lower lobes.

The picture was complicated on January 22 when the patient complained of moderate pain in the left chest in the posterior axillary line. This pain was aggravated by inspiration. Examination revealed flatness in the extreme left base with diminished bronchial breathing and diminished tactile and vocal fremitus in the same area. An x-ray examination of the chest on the 24th showed evidence of a small amount of fluid at the left base and a slight increase in the size of the cardiac shadow. On the 26th a thoracentesis was performed for diagnostic purposes and 200 cc of straw colored fluid was withdrawn. This was later found to be sterile.

The gallop rhythm disappeared on the 29th but a soft to and fro friction rub was heard along the left sternal border for two days, February 3 to 5. At the same time it was noted by x-ray examination that the heart measured approximately 15 cm in its transverse axis.

During this time the temperature ranged between 98 and 101 F. The patient improved from day to day and the blood cultures were persistently sterile. On February 1 for the first time the temperature was normal the entire day and remained so thereafter. She was allowed to sit up on the 10th. Physical examination and radiography revealed the heart contour to be normal in size and both lung fields clear and completely expanded. The abdomen was soft and the spleen was just palpable but not tender. The patient's appetite was good and the urinary output was normal. The electrocardiogram of February 14 showed all T waves to be upright and the QRS complexes to be normal except for slight slurring of the R wave in leads 1 and 3. The patient had a normal menstrual period starting February 15, which lasted four days. Pelvic examination revealed uterus anterior and a small cervical os with a slight erosion. The adnexal regions were slightly thickened and tender. When the patient was sufficiently strong, having been up and about eleven days without complaint, she was discharged on February 21 to a convalescent home. She will be followed closely in the medical and gynecology clinics for a period of six months or more.

Final laboratory examinations revealed white blood cells 9,700 with 64 per cent polymorphonuclears, 30 per cent lymphocytes, 4 per cent eosinophils and 2 per cent mononuclears. Hemoglobin was 62 per cent, 89 Gm. Red blood cells numbered 3,140,000, the color index was 0.95. The specific gravity of the urine was 1.006, with 30 to 40 white blood cells per high power field (noncatheterized), 1 plus albumin and many squamous cells.

COMMENT

This case presented a staphylococcal septicemia arising from a uterine focus, which up to the present day has been a fatal one. Additional interest was found in the development and treatment of the different complications which occurred. These were, in the order of their occurrence, peritonitis, toxic hepa-

titis, bilateral bronchopneumonia, acute glomerulonephritis, toxic myocarditis, left pleural effusion and pericarditis with effusion.

The question arises as to the role of penicillin in the treatment. There is no doubt in the minds of the men who followed the case that without penicillin it would have been fatal. It is felt that the patient was moribund when penicillin was started. The rapid decline of the temperature in the first twenty-four to forty-eight hours following the initial dose of penicillin, accompanied by the seven negative blood cultures and the subjective as well as the objective improvement of the patient, were directly attributed to the drug. The low grade fever which persisted for three weeks later was due to the multiple complications resulting from the profound sepsis that was present before the blood stream could be made sterile. In this type of infection one must expect to find, as we did, almost every system involved. The course of penicillin was prolonged not because we thought that the drug would have a direct effect on each site of trouble but because we felt that penicillin would maintain a sterile blood medium and thus prevent further spread of infection should the organisms persist in embolizing from the primary focus. At the same time the already involved sites, i. e. lungs, kidneys and heart, were treated as indicated.

Besides appreciating the effectiveness of penicillin we also learned, and it cannot be stressed too strongly, that supplemental therapy in these cases is absolutely essential for successful management. Optimal nutrition and the use of all supportive means at our disposal play a most important role. This patient had six transfusions of whole blood and one of plasma, as well as several infusions of dextrose in saline solution intravenously and oxygen when needed. A thoracentesis was performed also in an effort to prevent further complications. Liver, iron, vitamins and diets according to the condition of the patient were used for the purpose of keeping up the body's natural defenses.

The penicillin was provided by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for clinical investigations recommended by the Committee on Chemotherapeutics and other agents of the National Research Council.

Council on Foods and Nutrition

ACCEPTED FOODS

THE FOLLOWING ADDITIONAL FOODS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON FOODS AND NUTRITION OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO ACCEPTED FOODS

GEORGE K. ANDERSON, M.D., Secretary

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, 1939, p. 156)

H. J. Heinz Company, Pittsburgh

HEINZ CHOPPED GREEN BEANS

Analysis (submitted by manufacturer)—Total solids 8.25%, total sugar as sucrose 1.82%, reducing sugar as invert 1.74%, acidity as citric 0.09%, protein (N \times 6.25) 1.34%, fat (ether extract) 0.22%, crude fiber 0.93%, ash 1.15%, salt 0.71%, total carbohydrates other than crude fiber, by difference 2.61%, calcium 419 mg per kilogram, phosphorus 447 mg per kilogram, iron 5.3 mg per kilogram, copper 4.9 mg per kilogram.

Calories—0.25 per gram, 7 per ounce.

Vitamins—Vitamin A 620 I U/100 Gm.

Thiamine 0.037 mg/100 Gm.

Riboflavin 0.084 mg/100 Gm.

Ascorbic acid, 8.6 mg/100 Gm.

H. J. Heinz Company, Pittsburgh

HEINZ STRAINED BEEF BROTH WITH BEEF AND BARLEY

Analysis (submitted by manufacturer)—Total solids 13.49%, total sugar as sucrose 1.10%, acidity as citric 0.11%, protein (N \times 6.25) 2.48%, fat (by acid hydrolysis) 1.37%, crude fiber 0.31%, ash 0.87%, salt 0.48%, total carbohydrates other than crude fiber, by difference 8.15%, calcium 210.0 mg per kilogram, phosphorus 388.7 mg per kilogram, iron 8.4 mg per kilogram, copper 1.5 mg per kilogram.

Calories—0.57 per gram, 16 per ounce.

Vitamins—Vitamin A, 74 I U/100 Gm.

Thiamine, 0.032 mg/100 Gm.

Niacin, 1.53 mg/100 Gm.

Riboflavin, 0.035 mg/100 Gm.

Ascorbic acid, 1.7 mg/100 Gm.

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SATURDAY, JULY 1, 1944

SYLVATIC PLAGUE

The role of fleas in the transmission of *Pasteurella pestis* was not established experimentally until 1898, when Simond¹ succeeded in transmitting the disease from a rat dying of plague to a healthy rat by means of fleas. He thought that the infection resulted from inoculation of infective feces into the bite wound. Ten years later Verjbitski² observed that many species of rat fleas do not bite human beings but that they do cause fecal contamination of clothing or may be crushed and their intestinal contents rubbed into skin punctures or abrasions. This early theory of fecal transmission was first challenged by Walker,³ who showed that when tuberculin, vaccine lymph or staphylococcus emulsion is rubbed over recent flea bites inoculation does not follow.

Bacot and Martin⁴ found that two species of rat fleas were able to transmit plague during the act of sucking under conditions that precluded possible infection with dejecta. Considerable proliferation of the plague bacillus was detected in the digestive tract of many fleas, often sufficient to cause a blocking of the lower end of the esophagus. As a result of this blockade, regurgitation of micro-organisms takes place when the fleas attempt to feed on a new host. Bacot and Martin believed that only fleas suffering from this temporary obstruction at the entrance of the stomach are responsible for insect transmission of this disease.

Douglas and Wheeler⁵ of the Hooper Institute, University of California, have recently repeated this work, using *Dipodomys montanus*, one of the commoner fleas on California ground squirrels, as vectors, with *Xanthopsylla cheopis*, the classic rat flea, as control. The white mouse was selected as the experimental animal in place of the guinea pig, used by most previous investigators. The white mouse was found to be susceptible to intraperitoneal inoculation with a relatively

small number of *Pasteurella pestis* organisms. So inoculated they develop a relatively high bacteremia, distributed evenly throughout the peripheral blood stream. The degree of bacteremia was determined for each animal by microscope counts and plate counts, the average obtained by the two methods seldom differing by more than 15 per cent.

A number of previously unfed, laboratory reared fleas were placed on a plague infected mouse whose *Pasteurella pestis* bacteremia had been previously determined. Five minutes after having been fed, each flea was thoroughly emulsified in a known volume of sterile distilled water. The resulting aqueous extract was plated on agar and the viable *Pasteurella pestis* count determined. From this count the volume of the blood meal was readily calculated, which volume usually varied from 0.015 cmm. to 0.050 cmm., with an average of 0.030 cmm. per flea. The average number of organisms ingested with each meal was 300,000 when the fleas fed on a mouse with 2,000,000 *Pasteurella pestis* organisms per cubic millimeter of its circulating blood.

The Indian Plague Commission⁶ first pointed out that a certain proportion of fleas are able to clear themselves of the ingested bacilli. The rate of this autopurification was determined by the California investigators. By the end of forty-eight hours 40 per cent of the plate counts showed a considerable multiplication of the ingested organisms in the rat flea, while 60 per cent of the plates showed a slight reduction in the viable count. Only 2 per cent of the rat fleas showed complete autopurification. In the squirrel flea multiplication of the ingested bacteria was demonstrated in but 20 per cent of the cases, with complete autopurification within twenty-four hours in 60 per cent of the insects. Confirming this relative rate of autopurification, it was found that after a single infectious meal and subsequent daily feeding on normal mice 24 per cent of the squirrel fleas and but 4 per cent of the rat fleas had lost their power to transfer the infection. The mechanism of this autopurification has not yet been fully determined.

Serial microsections showed that within two days after ingesting septicemic blood plague bacilli may be seen in small clumps in the stomachs of squirrel fleas. By the tenth day both stomach and preentericulus are packed solidly with a bacterial mass now extending into the esophagus. In this condition the flea becomes infectious. The period of infectivity, however, is usually short. If allowed to feed once each day, the flea will transmit the infection two or three times but will almost invariably die on the fifth day, death presumably being due to starvation. In the rat flea development of a similar esophageal blockade usually required sixteen days, the flea usually dying four days later.

1. Simond, P. L.: *Ann. Inst. Pasteur* 12: 625, 1898.

2. Verjbitski, D. T.: *J. Hyg.* 8: 162, 1908.

3. Walker, C.: *J. Hyg.* 11: 290, 1911.

4. Bacot, A. W., and Martin, C. J.: *J. Hyg.* 13: 423, 1913.

5. Douglas, J. R., and Wheeler, C. M.: *J. Infect. Dis.* 72: 18, 1943.

6. Reports of Plague Investigations in India, *J. Hyg.* 7: 355, 177; 8: 260, 1908.

Daily plate culture made of the vial of each flea showed that only 56 per cent of the daily fecal samples from the squirrel flea and but 25 per cent of the samples from the rat flea contain viable *Pasteurella pestis* organisms. The average daily count in these positive cultures was 200 bacilli, with the number frequently falling to less than 10. Even assuming that the fecal bacteria are of full virulence, this number is usually too small to incite an infection in a guinea pig by the cutaneous or subcutaneous route. Moreover, Bacot and Martin found that these fecal bacteria are usually of low virulence since they are more readily phagocytized than control bacteria from the blood stream of plague infected rats.

Demonstration that within twenty-four hours 60 per cent of the infected squirrel fleas are able to digest or otherwise free their alimentary canal of *Pasteurella pestis*, and that the remaining 40 per cent become infectious only between the tenth and fifteenth day is contrary to prevailing clinical belief based on the historical theory of fecal transmission.

CHEMOTHERAPY OF MURINE TYPHUS

Since the beginning of the present war the possibility of successful chemotherapy of rickettsial infection has been subjected to intensive clinical research. Various sulfonamides¹ have been tried with alleged success in cases of human typhus. Their usefulness, however, appears to be limited to the treatment of pneumonia and other secondary bacterial invaders. Neoarsphenamine in metaphen,² atabrine-plasmochin and atabrine-calcium mixtures³ have also been given with allegedly favorable results. The available evidence, however, is too scanty for a definite conclusion.

In order to make possible a study of a larger number of therapeutic agents with adequate controls, Peterson⁴ of the International Health Division of the Rockefeller Foundation has begun a study of the chemotherapy of murine typhus. This is a rickettsial infection of mice first described about four years ago by Gildermeister.⁵ Yolk sac cultures of the infectious agent usually contain a sufficiently large number of rickettsias to kill mice by toxic action within two to eight hours after intraperitoneal injection. By reducing the dose, however, the mice are not affected by the toxin but die four to five days later of rickettsial infection. Peterson selected as his standard dose 0.5 cc. of a 1:100 dilution of murine infected yolk sac injected intraperitoneally. This usually killed from 80 to 100 per cent of all control mice. A group of 20 mice was usually used in testing each chemotherapeutic agent, with an equal number of

untreated controls. Feeding of each test drug was usually begun about twenty-four hours before intraperitoneal inoculation. With other groups the therapeutic feeding was begun at the time of the inoculation or delayed from twenty-four to seventy-two hours after inoculation.

Among the drugs thus far tested, toluidine blue has given the most promising results. In a typical experiment 40 mice were fed fox chow containing 1.5 per cent toluidine blue. Twenty-four hours later these mice together with 20 normally fed controls were injected intraperitoneally with the standard dose of murine infected yolk sac. The mortality was 80 per cent among the untreated controls but only 29 per cent in the group fed toluidine blue. In other groups a 90 per cent control mortality was reduced to 25 per cent by feeding 0.5 per cent toluidine blue beginning at the time of the infection, with a reduction to 50 per cent in a parallel group in which the therapeutic feeding was not begun till twenty-four hours after inoculation. If the therapeutic feeding was delayed till the forty-eighth hour, toluidine blue was without demonstrable effects. In partial explanation of these results it was found that 1:10,000 toluidine blue had a definite in vitro neutralizing action on the yolk sac toxin and also reduced the infectious titer.

Less effective therapeutic activity was noted with "forbisen." With this product it was necessary to increase the concentration to 2.5 per cent in the diet in order to produce significant results. In a typical experiment approximately 60 per cent of the infected mice survived when fed 2.5 per cent forbisen, while 100 per cent of the control mice died of the infection.

The discovery of two effective chemotherapeutic agents against rickettsial infections is promising, stimulating hope of an eventual successful chemotherapy of human typhus.

PHANTOM LIMBS

"Phantom limb" was described as early as 1551 by Ambroise Paré and later by S. Weir Mitchell. Revival of interest now is due to war casualties and to realization that phantom limb is a common occurrence after amputations. Leriche observed its occurrence after amputations in 98 per cent, Pitres in 97 per cent, Weir Mitchell in 95 per cent and Foerster in 100 per cent. Riddoch¹ states that it is usual for the patient to experience sensations following amputation, at least for a time, as if the limb were still present, and the proportion is greater with upper than with lower limbs. These sensations may be painless or painful but are always more or less abnormal. Bilateral amputations may be followed by bilateral phantom hands or feet; or one or both may be absent; or one may be painless

1. Riddoch, George: Phantom Limbs and Body Shape, *Brain* 61: 197 (Dec.) 1941.

1. Wohlrab, V. W.: *Klin. Wchnschr.* 31: 445, 1942.
2. Baker, G. E.: *Ann. Int. Med.* 17: 247, 1942.
3. van Meerendonk, Piet: *Deutscher Militärarzt* 7: 283, 541, 1942.
4. Peterson, O. L.: *Proc. Soc. Exper. Biol. & Med.* 55: 155, 1944.
5. Gildermeister, E., and Haagen, E.: *Deutsche med. Wchnschr.* 66: 878, 1940.

and the other painful. Intractable pain in the phantom limb, while relatively rare, may present a formidable therapeutic problem. The pain appears about the same time as the phantom, immediately or some time after the operation, and is felt mainly in the hand or foot. In the hand pain is referred chiefly to the wrist, palm, knuckles and tips of the fingers and thumb, and in the foot to the instep, heels and toes. If there had been a painful wound in the forearm or leg before the amputation, the pain may seem to persist in the same area in the phantom as if the sore were still present. The sensations experienced in the phantom are those of warmth, itching, burning, throbbing, piercing, cramping, sticking or cutting. The pain is usually continuous and subject to exacerbations. There may be a sensation of the phantom limb being crushed or torn. Many patients ultimately become narcotic addicts or are driven to suicide. The posture of the phantom part is almost invariably that of the limb before amputation, especially if pain was antecedent to operation.

The supposition that the condition is psychogenic in nature and that the patient is a psychoneurotic has not been borne out by clinical observations. Early observations, particularly those of Weir Mitchell, pointed to the important role played by the peripheral nerve stumps. Mitchell observed that faradization of the brachial plexus in a patient long after amputation reproduced the sensation of hand which was bent and hurt the patient. He concluded that irritation of sensory trunks may produce impressions of muscular motion in the sensorium. According to Riddoch the phantom sensation is a projection arising from the postcentral sensory association areas in the cerebral cortex. He attaches considerable importance to the condition of the stump, especially of its peripheral part. Certain features of the stump, which may appear sooner or later after the operation, influence the late development of pain in the absent part. End bulbs or neuromas are invariably present in amputation stumps. They may be small and benign or abnormally large and tender. The nerve trunks may become affected and be the seat of interstitial neuritis. The worst cases of painful phantom limbs tend to become associated with these abnormalities in the stump. Any stimulus, physical or emotional, that can evoke pain is usually effective for both stump and phantom limb. Then cramplike rigidity of the phantom hand and fingers most often forms the most constant background of pain. Pain in the phantom is due to excessive stimulation of the nerves in the stump and results in extended representation of the absent limb in the phantom and limits voluntary movement of the phantom only because voluntary effort aggravates the pain. The prevailing posture of the phantom is that of the part at the time of amputation. "It is as if the postural model had become frozen when normal stimulation ceased."

The part played by the autonomic nervous system was emphasized by Leriche and by Livingston.² Repeated injections of sympathetic ganglions produced in some of their cases of painful phantom limb beneficial effects which persisted for weeks or months. Experimental evidence is against the opinion that pain impulses from the periphery traverse the sympathetic ganglions. They probably follow the mixed nerves to enter the spinal cord by the posterior roots of the brachial plexus. The best that can be said for this therapy is that the symptoms may be temporarily alleviated in a number of instances, and that occasionally the relief afforded by such an injection persists for a long time (Livingston). Resection of painful neuromas, in the opinion of Leriche and of Bailey and Moersch,³ never produces lasting results, as the neuroma invariably reforms. White⁴ feels that the removal of a palpable painful neuroma is worth a single trial, provided the pain disappears when the neuroma is injected with procaine. Repeated excisions of neuromas, neurectomies, reamputations at higher levels and resection of posterior roots consistently fail and should not be resorted to. Chordotomy is more effective than section of the posterior roots. Bailey and Moersch state, however, that this operation has not afforded relief in cases observed by them.

The observation by Head and Holmes that a contralateral cerebral lesion abolished the phantom at once in a patient observed by them called attention to the role of the higher centers in the mechanism of this phenomenon. Gutierrez-Mahoney⁵ argued that, since the peripheral pathways are multiple, it would be simpler to interrupt the chain at the intermediate level by removal of the corresponding part of the postcentral cortex. He has performed this operation on a man aged 40 who got his right hand caught in a circular saw, which amputated the terminal phalanx of the middle finger and the terminal and half of the middle phalanx of the ring finger. Immediately after operation he was conscious of the presence of the amputated fingers. These phantoms were extremely painful. Gutierrez-Mahoney exposed under local anesthesia the left parietal lobe, determined by stimulation the area corresponding to the middle and ring fingers of the right hand, and excised this area by subpial resection. There was an immediate disappearance of the phantom fingers and the pain, which had not recurred two years after the operation. This new type of intervention may prove to be the solution of the problem of the intractable pain of the phantom limb.

2. Livingston, W. K.: *Phantom Limb Pain: A Report of Ten Cases in Which It Was Treated by Injections of Procaine Hydrochloride into the Thoracic Sympathetic Ganglions*, *Arch. Surg.* **37**: 353 (Sept.) 1914.
3. Bailey, Allan A., and Moersch, Frederick P.: *Phantom Limb Pain*, *Canad. M. A. J.* **45**: 37 (July) 1941.
4. White, James C.: *Pain After Amputation and Its Treatment*, *J. A. M. A.* **124**: 1030 (April 8) 1944.
5. Gutierrez-Mahoney, C. G.: *The Treatment of Painful Phantom Limb by Removal of Postcentral Cortex*, *J. Neurosurgery* **1**: 155 (May) 1944.

Current Comment

IMMUNE SERUM GLOBULIN FOR MEASLES MADE AVAILABLE TO CIVILIANS

Elsewhere in this issue (page 638) appears an announcement relative to a plan adopted by the American Red Cross in cooperation with the armed forces and with various pharmaceutical manufacturers to make available at cost to the American people surplus immune serum globulin to be used for the prevention of measles. From its very inception this has been a fine example of efficient functioning of the democratic way of life. The research leading to the development of this product was carried out by the Plasma Fractionation Laboratory of the Harvard Medical School under Professor E. J. Cohn. The work, both laboratory and clinical, was supported by contracts from the Committee on Medical Research of the Office of Scientific Research and Development and with guidance by the committees of the Division of Medical Sciences of the National Research Council. The medical departments of the Army and Navy gave the product efficient trial in various installations. The quality and production are under control of the National Institute of Health. The blood was contributed by millions of American citizens in the depots established and maintained by the American Red Cross. Five pharmaceutical manufacturers processed the material and have agreed—since the blood is donated by the people—to make the product available through health departments at actual cost. No doubt many additional uses for surplus material from the blood thus procured will be developed. Already experimentation is turning to the surplus corpuscles and to other protein fractions. Eventually, no doubt, in the postwar period means will be found for adjusting the present tremendous program to peacetime civilian and military needs. The plan now established by the American Red Cross and the participating private agencies is highly commendable.

BAGASSE DISEASE OF THE LUNGS

Bagasse is the product remaining after the extraction of sugar from sugar cane. According to Sodeman and Pullen¹ this material is commonly baled and if not used immediately may remain exposed in the field for some months before being converted, by processing, into insulating and acoustic board. Workers employed in the breaking of these bales sometimes acquire a respiratory illness, 7 cases of which have been previously reported. This paper presents 11 additional case reports with resultant clarification of the clinical picture. Cough and dyspnea were early and important symptoms. Dyspnea occurred in all cases and was almost invariably the chief complaint. It appeared suddenly and became sufficiently severe to force the

patient to rest. Cough occurred in all instances, and hemoptysis was noted four times; it lasted only a few days and the amount varied but never exceeded a teaspoon daily. In general, the sputum which was raised in 9 instances was scanty and mucoid. Pharyngeal irritation was noted in 3 cases; pleural pain was not observed, but retrosternal pain was associated with dyspnea and cough. Night sweats, chills and fever were not infrequent. Intermittent fever with temperatures ranging from 99.8 to 101.2 F. was observed and persisted up to three or four weeks. In 3 cases fever was not noted. Tachycardia occurred in 4 cases. Weakness over a long period was characteristic. Examination of the chest revealed nothing spectacular, although impaired resonance and diminished breath sounds were noted in 4 instances. Roentgen examination of the chest showed in all cases a miliary mottling throughout both lungs, most dense in the hilar areas. Leukocyte counts varied from 7,400 to 20,600, and 10 of the 11 patients had counts above 10,000. In 7 cases the differential count revealed polymorphonuclear leukocytosis. Treatment consisted of rest in bed during the acute stages of the disease and palliative medication. The hospital stay varied from nine to ninety-three days. Needle biopsy specimens were obtained from the lung of 1 patient in the sixth and seventh weeks of the disease. Microscopic studies of these specimens indicated the presence of bagasse dust with a severe and unusual cellular reaction, the nature of which has not yet been established. The condition described is a true industrial disease.

ACADEMIC FREEDOM AND MEDICAL EDUCATION

If recent proposals to supply federal funds in large quantities to educational institutions after the war are adopted, the effect will influence the future of medicine for decades. F. R. Moulton, writing in the May bulletin of the American Association for the Advancement of Science, raises some important points bearing on this problem as far as it relates to higher education in general and to academic freedom in particular. Many of his points are especially cogent for medical education. "Naturally an institution facing an acute emergency," Moulton says, "will not be unduly strict in grading students on whose return its future seems to depend. At the end of the second year (of federal support) a continuing emergency will call for a third year, and then the colleges and universities will have been added to the long list of pressure groups receiving sustenance from Washington." Many questions would be better raised now rather than later. If medical students receive federal largess, will not the government be entitled to some service in return, and if so what? Should the young doctor spend one year, two years or more in repaying his debt to the state? Is the medical school which is dependent for its existence on federal funds obligated to the federal government? And if so in what way must its debt be paid?

1. Sodeman, W. A., and Pullen, R. L.: Bagasse Disease of the Lungs, *Arch. Int. Med.* 73: 365 (May) 1944.

aided greatly in maintaining the morale and fighting strength of its men. It is with great pleasure that I express my appreciation of his service and commend him for his performance of duty." Dr. Shulman graduated from Syracuse University College of Medicine in 1935 and entered the service in May 1942.

Colonel Irwin Bradfield Smock

The Legion of Merit Award was recently presented to Col. Irwin B. Smock. The citation accompanying the award read as follows: "From Feb. 18 to April 25, 1942, as medical inspector, Hawaiian Department, he rendered meritorious acts of extraordinary fidelity and service in establishing and coordinating the operation of expanded medical department installations in the Territory of Hawaii. Through his able planning and supervision of construction, the military hospitalization program on the island of Hawaii was greatly expedited, and installations were prepared for immediate occupancy and use when hospital units arrived to furnish hospitalization for incoming tactical units." Dr. Smock graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1912 and entered the service April 27, 1938.

Lieutenant James B. Ashley

Posthumous award of the Bronze Star medal has been made to Lieut. James B. Ashley. He was killed in action at Guadalcanal, Jan. 13, 1943. The citation accompanying the award states that "he placed the welfare of those injured above his own safety and gave his life in the pursuit of his duties." Dr. Ashley graduated from the University of Michigan Medical School, Ann Arbor, in 1941 and entered the service July 1, 1942. His father, Lieut. Col. L. Byron Ashley, is now with the Harper Hospital Unit in Italy.

MISCELLANEOUS

SURPLUS IMMUNE SERUM GLOBULIN FOR MEASLES (NORMAL SERUM GAMMA GLOBULIN [HUMAN])

Measles Immune Serum Globulin (Normal Serum Gamma Globulin [Human]) Declared to Be in Excess of the Requirements for the Armed Forces Now Released for Civilian Use

Immune serum globulin (normal serum gamma globulin [human]) is a by-product in the processing of a blood substitute; namely, serum albumin. It is derived from the blood contributed by our citizens through the American Red Cross. The laboratory and clinical research leading to its development were supported by the Committee on Medical Research of the O. S. R. D. and by the Division of Medical Sciences of the National Research Council. In processing the blood there is built up a surplus of immune serum globulin (normal serum gamma globulin [human]) beyond the needs of the armed forces. As far as is practicable it is desired that this surplus should be returned to civilian use. The processing of the serum globulin from the time it is separated from the albumin until it has been placed in the final container and tested for safety, purity, sterility and potency involves, however, a considerable processing expense. This expense is an unavoidable part of the processing and must be covered in some way before the globulin can be made available for civilian use. The method of meeting this charge is to be patterned after the procedure now used by the Army and the Navy for covering the cost of processing plasma and albumin; namely, having the cost assumed by the agency receiving and distributing the material. The plan proposed is as follows:

1. Under the existing contracts between the Navy and the several processing laboratories, the Navy has control over the disposition of the crude globulin fraction which is derived as a by-product from processing serum albumin. From time to time the Navy will declare as surplus any amounts of crude globulin which are not needed by the armed forces and will assign to the American Red Cross the disposition of these amounts.

2. The control of processing and the testing and release of the product should be, as under the Navy contracts with the several

FROSTBITE AMONG AMERICAN COMBAT AIRMEN GREATLY REDUCED

Brig. Gen. Malcolm C. Grow, surgeon chief of the Air Service Command, recently announced that frostbite among American combat airmen has been reduced 1,500 per cent in one year. The chief factors in this tremendous reduction are improved electrically heated flying clothing, face masks, gloves and the new windows for waist gunners aboard fortresses and liberators. General Grow stated that "in April 1943 60 men out of every 10,000 flying operationally suffered frostbite, which in many cases resulted in amputations and permanent injuries to the victims. Today, thanks principally to the waist window, which reduces wind blast 90 per cent, that figure has been slashed to 4 in 10,000." Of 131,000 combat crewmen flying in operations during April 1944, only 56 were hospitalized for frostbite.

SPECIALIZED WOMEN WANTED FOR ARMY

An opportunity is now open for certain specially trained women to serve with the Medical Department of the Army in the Women's Auxiliary Corps. The following are some of the positions open to qualified women who may be enlisted for service with the Medical Department: pharmacists and pharmacists' aides, orthopedic mechanics, laboratory technicians, x-ray technicians, lip reading technicians, braille technicians (instructors), occupational therapists and aides, dental laboratory and hygienist technicians and dental aides. Interested persons should apply to the local officer of the Procurement Service or to the WAC recruiting office.

processing laboratories, by the Plasma Fractionation Laboratory of the Harvard Medical School until such time as the constancy of the product as produced by each commercial firm has been satisfactorily demonstrated. As this product is a biologic preparation, it must first be released by the National Institute of Health before the producing laboratories can supply it to the various agencies.

3. The American Red Cross will enter into an agreement with the several processing laboratories as to the delivery price f. o. b. the processing laboratory of a 5 cc. vial of the finished, refined and packaged concentrated globulin. This price is to be a cost price, based on the allowable factors necessary for processing this material without profit from the crude globulin state to its finished form.

4. Each vial shall bear the label required by the National Institute of Health for licensed products. Each cardboard container for individual packaging shall bear the same and also the following statement:

"This product was obtained from blood donated by volunteers through the American Red Cross for the armed forces. It is a by-product of serum albumin and is hereby returned through the American Red Cross for military or civilian use free of charge. The cost of processing, testing and packaging was paid by the agency distributing the product. The resale of this material is prohibited."

5. The American Red Cross will provide each processing laboratory with a list of participating agencies which are entitled to receive the immune serum globulin (normal serum gamma globulin [human]). The following agencies and they alone in the order of preference will be eligible:

(a) The armed forces of the United States.

(b) The American Red Cross, the United States Public Health Service, and any other agency of the U. S. government whose order for the product is approved by the Red Cross.

(c) State departments of health and those local health departments whose orders are approved by the Red Cross.

These departments may on request furnish immune serum globulin (normal serum gamma globulin [human]) to any

hospital within their jurisdiction at the cost to them. This will not constitute a resale of the product. The cost shall not be passed on to the patient, either directly or indirectly.

6 The American Red Cross makes this announcement simultaneously to the participating agencies and to the public, and it will be further disseminated through joint action with the Association of State and Territorial Health Officers.

7 Participating agencies may purchase as many 5 cc vials of immune serum globulin (normal serum gamma globulin [human]) as they need. However, in order to insure equitable distribution with respect to these agencies and to the several laboratories, all requests for this material shall be filed with and approved by national headquarters of the American Red Cross. National headquarters, on the basis of the stocks of dried serum globulin available in the several laboratories and geographic consideration of conveniences and expense, and irrespective of the contract price, will in turn inform the requesting agency with which laboratory the order should be placed, and in this the decision of the Red Cross shall be final. The Red Cross will also send to the designated laboratory or laboratories a copy of its instructions to the requesting agency. The purchase price of the laboratory plus any shipping charges, shall be borne by the agency placing the order.

8 Each processing laboratory will provide the American Red Cross monthly with an inventory of the amount of dried and stored immune serum globulin (normal serum gamma globulin [human]) and the amount fully processed, tested, packaged and ready for distribution together with a report of the number of finished packages distributed during the previous month. In turn the American Red Cross will send to each laboratory monthly a compilation of said inventories and reports received from the laboratories.

9 Each agreement between the American Red Cross and the processing laboratories may be terminated by mutual consent or at the option of either party on the submission in writing of notice to such effect sixty days prior to such proposed termination. The disposition of any stock of serum globulin in any form remaining in the hands of such processing laboratory on such termination shall, for a period of six months after the effective date of termination, be subject to the control and direction of the American Red Cross in accordance with the provisions of this plan; thereafter, such remaining stocks may be disposed of by the processing laboratory at a price not to exceed the price agreed on plus reasonable costs of sale and distribution based on the previous years' experience of the processor in the sale and distribution of other biologic products.

CIVIL SERVICE COMMISSION'S CLEARANCE PROCEDURE FOR SENIOR CADET ASSIGNMENT

The U S Civil Service Commission recently established the following clearance procedure for senior cadets requesting appointment to one of the five federal services. This report was made to a representative of the Division of Nurse Education which administers the U S Cadet Nurse Corps under the United States Public Health Service. The commission acts only as a pool for the five federal hospital services—Army, Navy, U S Public Health Service, Veterans Administration and Indian Service—to clear applications of prospective senior cadets. A check is made by the commission to see that the school of nursing is approved by state boards of nurse examiners. Applications are then sorted according to the student's preference and are filed on cards. At present, representatives of each of the federal nursing services go to the Civil Service Commission headquarters to review applications of their service.

A cadet's eligibility is determined by the federal service to which she has applied. Each service makes its own selection, the scholastic standing of the cadet being a major deciding factor with each service in accepting the cadet's application.

Physical requirements regarding height, weight, teeth and vision also must be met. If a cadet nurse does not meet the requirements of her first choice her application is returned to

the commission, where it is referred to the service of her second choice. Should the cadet's application not be accepted by any of the services, the School of Nursing is notified and the application is returned to the Civil Service Commission stating the reason for rejection.

Miss Ruth A. Heintzelman was recently appointed nursing consultant, Medical Division of the U S Civil Service Commission. She is also nursing consultant on the clearance of senior cadet nurses. As of May 1, 1944 the commission had processed approximately 3,000 applications. Out of this number approximately 2,000 had been turned over to the five federal services. The Army decided on 799, the Navy accepted 534, the U S Public Health Service accepted 21 and the Indian Service accepted 31.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service.

(Continuation of list in *THE JOURNAL* June 24, page 562)

MASSACHUSETTS

Union Hospital, Fall River. Capacity, 186, admissions, 3,829. Miss Jennie F. Smithies, R.N., Superintendent (2 interns, October 1).

MINNESOTA

Bethesda Hospital, St. Paul. Capacity, 180, admissions, 6,083. Reuben B. Benson, Superintendent (interns).

NEW YORK

Coney Island Hospital, Brooklyn. Capacity, 300, admissions, 5,611. Dr. Saul M. Penner, Superintendent (2 interns).

CIVILIAN AMBULANCE SERVICE

Civilian ambulance service may soon become serious, particularly in those sections of the country where bad roads are accelerating normal wear, members of the Ambulance Body Manufacturers' Industry Advisory Committee of the War Production Board informed officials of WPB's Automotive Division recently. A substantial need for ambulances in industrial plants already exists. Discussion of the possibility of manufacturing new ambulance bodies on used chassis led to the conclusion that such a program would be difficult in view of the acute shortage of used chassis, but industrial members expressed the belief that the conversion of used passenger cars into ambulances would be the only practicable way to ease the present shortage when conditions justified such a step. Discussing the relation of the ambulance industry to the automotive industry and preparation for the reconversion period, industrial members expressed the view that no independent planning was possible. Any ambulance plans must wait on the plans for the automotive industry as a whole, members of the committee said.

DRUG SUPPLY DEPOTS ESTABLISHED IN EIGHT MAJOR PORTS

The War Shipping Administration recently announced the establishment of drug supply depots in eight major ports, which will assure a supply of essential drugs for men in the American Merchant Marine. Supplies of penicillin, dried blood plasma, insecticides and quinine will be maintained in depots at the ports of New York, Portland, Ore., Seattle, New Orleans, Norfolk, Va., Baltimore, San Francisco and Philadelphia. This will enable the operators of all WSA owned or chartered vessels to maintain readily a supply of essential medicines as prescribed in the minimum drug list. Preparations such as these are not always available in quantity on the open market, and the cooperation of the War Production Board and the armed services was established in setting up the WSA depots. Supplies will be allocated from the depots to operators on an actual cost basis.

STATE MEDICAL OFFICERS OF SELECTIVE SERVICE SYSTEM HOLD MEETING

State medical officers of the Selective Service System opened a three day meeting June 5 at national headquarters. Major Gen. Lewis B. Hershey, director, delivered the address of welcome and Col. Leonard G. Rowntree, chief of the Medical Division, presided at the sessions which were devoted to discussions and reports on medical phases of administering the Selective Training and Service Act. Vice Admiral Ross T. McIntyre, Surgeon General of the Navy and chairman of the five man commission on physical standards, addressed the meeting Monday. Major Gen. Norman T. Kirk, Surgeon General of the Army, spoke Tuesday, and Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, spoke on Wednesday.

DEDICATE NEW NATIONAL INSTITUTE OF HEALTH IN HAVANA

On May 17, at the invitation of the Cuban government and Dr. Alberto Recio, the minister of health, Brig. Gen. James Stevens Simmons, chief, Preventive Medicine Service, Office of the Surgeon General, U. S. Army, visited Havana and took part in the dedication of the new National Institute of Health. During the ceremonies President Batista decorated General Simmons with the medal of the Carlos J. Finlay National Order of Merit in the grade of Gran Oficial. The President also sent by General Simmons to Major Gen. Norman T. Kirk, the Surgeon General of the Army, a certificate conferring the Carlos J. Finlay Order of Merit in the grade of Gran Cruz on the former American Yellow Fever Commission for its fundamental experimental work in Cuba on the etiology and transmission of yellow fever under the leadership of Major Walter Reed. The certificate will be preserved in the Army Medical Library in Washington.

MINNESOTA GRADUATES IN MEDICAL CORPS TO RECEIVE BULLETIN FREE

All graduates of the University of Minnesota Medical School who are officers in the medical corps of one of the services are eligible to receive, without charge, the Bulletin of the Minnesota Medical Foundation. The mailing list is known to be incomplete and to contain inaccurate addresses, especially as regards the Navy Medical Corps. All Minnesota graduates who are officers in the Army or Navy are invited to send their service address to the editor of the Bulletin, 132 Medical Sciences Building, University of Minnesota, irrespective of whether some issues of the Bulletin have reached them.

MORE LACTOSE AVAILABLE TO PENICILLIN PRODUCERS

Because of the threatened shortage of lactose, important for the growing of the mold that yields penicillin, steps have been taken by the War Food Administration in cooperation with the producers to double last year's lactose production in 1944. The output of lactose this year is expected to reach 14 million pounds. The War Production Board estimated that penicillin manufacturers will need 6 to 7 million pounds annually.

WARTIME GRADUATE MEDICAL MEETINGS

The following speakers and subjects have recently been announced for Wartime Graduate Medical Meetings:

At the U. S. Naval Hospital, Santa Margarita Ranch, Ocean-side, Calif.: Differential Diagnosis of Functional and Organic Heart Disease (panel discussion), Dr. James F. Churchill and Dr. Wilbur Beckett, July 12.

At the U. S. Naval Hospital and U. S. Naval Academy Dispensary, Annapolis, Md.: Drug Allergies, Dr. Nathan B. Herman, July 21.

PUBLIC HEALTH UNDER HITLER

In addressing chemists of Lower Silesia in Breslau, the reichsapothekerfuhrer stressed that no difficulties with regard to the supply of raw materials need be feared, as all genuine military and civilian requirements of medicine have been guaranteed, according to the *Hamburger Fremdenblatt* of February 12. The shortage which has been noticeable in some places was caused by an occasional morbid craving for medicine shown by many persons. A considerable part of the demand for medicine, which has increased extraordinarily, is the result of a real need, but medicines were often hoarded. While before the war a small packet was bought, purchasers now always buy the largest. In this way persons who really need medicine are made to suffer.

In order to prevent this, measures are to be taken, for instance, on the insulin market, which will guarantee that the requirements of genuine sufferers from diabetes are met. Naturally many prewar medicines are no longer available, but they are dispensable drugs for which there are equivalent substitutes. Raw materials have been secured. Air raids can only temporarily interrupt deliveries and the interruptions can quickly be made up for from substitute stocks throughout Germany. The demand for homeopathic medicines, which varies in different places, can also be taken into consideration. The output of the pharmaceutical industry, which has increased threefold compared with prewar years, naturally goes largely to the armed forces, but these in turn make medicines available to the raided districts and for other special needs. In Germany as a whole 11 million children are collecting medicinal herbs. Their average is estimated at 1 Kg. of dry herbs. A considerable proportion of these goes to the armed forces. The shortage of camomile this year is due to the bad harvest. The name *Deutscher Hausteek* may be used only for teas examined by the reich health office. Most of the young people have been conscripted, and therefore the shop staffs are often too old. In addition, the chemist now often has to do twice as much work. The employment of women has been justified by the results.

Curculul of Jan. 24, 1944 (Rumania) states that speculation in medicines which are in short supply, such as insulin, surpasses all limits. Although these are officially lacking in chemists' and drug stores, offers to obtain them for use as a privilege are made, naturally at high prices. It is thought that the Ministry of Health should investigate the matter.

CINCHONA BARK AND CINCHONA ALKALOIDS

The War Production Board recently amended order M-131, governing the allocation of cinchona bark and cinchona alkaloids, to permit the delivery of quinidine to an ultimate consumer on the receipt of a prescription signed by a person who is licensed to prescribe drugs. Only physicians licensed to practice medicine were permitted to prescribe quinidine prior to this revision. Quinidine may be used only for the treatment of cardiac disorders, the War Production Board said.

COMMUNITIES IN NEED OF PHYSICIANS

The following communities have applied to the U. S. Public Health service for federal assistance in obtaining the services of physicians under the recently enacted law authorizing an appropriation of \$200,000 for the relocation of physicians:

Waxhaw (Union County), North Carolina.
Glenrock (Converse County), Wyoming.
Leola (McPherson County), South Dakota.
Faith (Meade County), South Dakota.
Vale (Malheur County), Oregon.
McEwen (Humphreys County), Tennessee.
Tribune (Greeley County), Kansas.
Colonia (Tripp County), South Dakota.
Hiwassee (Towns County), Georgia.
Stover (Morgan County), Missouri.

Physicians interested in locating in these communities should communicate with the Surgeon General, United States Public Health Service, Washington (Bethesda Station), D. C.

ORGANIZATION SECTION

PROCEEDINGS OF THE CHICAGO SESSION

MINUTES OF THE NINETY-FOURTH ANNUAL SESSION OF THE AMERICAN
MEDICAL ASSOCIATION, HELD IN CHICAGO, JUNE 12-16, 1944

HOUSE OF DELEGATES

Second Meeting—Tuesday Morning, June 13

The House of Delegates was called to order at 10 a. m. by the Speaker, Dr. H. H. Shoulders.

Roll Call

On motion of Dr. A. A. Walker, Alabama, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, the House dispensed with the roll call.

Presentation of Minutes

Dr. A. A. Walker, Alabama, moved that the House dispense with the reading of the minutes. The motion was seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried.

Report of Reference Committee on Credentials

Dr. Deering G. Smith, Chairman, reported that one hundred and sixty-nine members of the House of Delegates had been registered.

Report of Reference Committee on Medical Education

Dr. W. C. Davison, Chairman, presented the following report:

1. Report of Council on Medical Education and Hospitals: Your reference committee approves the report of the Council on Medical Education and Hospitals, section by section and as a whole, as printed in the Handbook.

2. Supplementary Report of the Council on Medical Education and Hospitals: Your reference committee approves the supplementary report of the Council on Medical Education and Hospitals, which includes the "Essentials of an Acceptable School for X-Ray Technicians" and changes in the curriculum section of the "Essentials of an Acceptable Medical School."

3. Resolution Opposing Training of Nonmedical Personnel in Audiometry: Your reference committee approves the Resolution Opposing Training of Nonmedical Personnel in Audiometry, introduced by Dr. G. Henry Mundt, Illinois, amended to read: "*Resolved*, That the American Medical Association is opposed to the training and practice of nonmedical personnel in audiometry, except under the direction and supervision of a qualified physician."

4. Resolution on Shortage of Trained Nurses: Your reference committee approves the Resolution on Shortage of Trained Nurses, introduced by Dr. S. E. Gavin, Wisconsin, amended to read:

WHEREAS, There is a very obvious deficiency in trained personnel for nursing; and

WHEREAS, The demands for adequate nursing are apt to be greater; be it

Resolved, That the Council on Medical Education and Hospitals communicate with the various national organizations concerned with nursing for the purpose of discussing the present nursing situation in order that the proper nursing bodies may consider the matter with a view toward its amelioration.

5. Resolutions on Creation of Board of General Practice: Your reference committee does not approve the Resolutions on creation of a Board of General Practice, introduced by Dr. H. A. Luce, Michigan, because of lack of jurisdiction, but it

recommends that this proposal be referred to the Council on Medical Education and Hospitals for transmissal to the Advisory Board for Medical Specialties.

Respectfully submitted,

WILBURT C. DAVISON, Chairman.
THOMAS S. CULLEN.
CHARLES H. PHIFER.
FRANCIS F. BORZELL.

On motion of Dr. Davison, seconded by Dr. Walter E. Vest, West Virginia, and carried, section 1 of the report of the reference committee, approving the report of the Council on Medical Education and Hospitals, was adopted.

It was moved by Dr. Davison, seconded by Dr. William Weston, Section on Pediatrics, and carried, that the House approve the second section of the report of the reference committee, approving the supplementary report of the Council on Medical Education and Hospitals.

Dr. Davison moved that the third section of the report of the reference committee, approving an amended resolution referring to audiometry, be adopted. The motion was seconded by Dr. John Z. Brown, Utah, and carried.

The fourth section of the report of the reference committee, recommending an amended resolution dealing with shortages of trained nurses, was adopted on motion of Dr. Davison, seconded by Dr. James C. Sargent, Wisconsin, and carried.

The fifth section of the report of the reference committee, referring resolutions dealing with the creation of a board of general practice to the Council on Medical Education and Hospitals, was adopted on motion of Dr. Davison, seconded by Dr. John Z. Brown, Utah, and carried.

On motion of Dr. Davison, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried, the report of the reference committee was adopted as a whole.

Report of Reference Committee on Miscellaneous Topics

Dr. H. A. Luce, Chairman, presented the following report: To this committee was referred the resolution from Dr. James R. Miller, Connecticut, which is short.

Your committee wishes to quote from "The Appeal in behalf of the Wells National Testimonial Fund," as follows: "The Benefactor of Mankind, by the bestowal upon the world of the greatest physical boon ever yet conferred by man upon his fellows—the soother of the sufferings of the battle field, the hospital and the household—perishing prematurely in the course and as a consequence of his own zealous eagerness to amplify and extend the advantages of his discovery, not only received no recompense for his labors, such as has fallen to the lot of those inventors with whom he should at least take equal rank, but left unprovided with even moderate means of support the loved ones of his own fireside."

Your reference committee wishes to add to the resolution a further recommendation that this endorsement and commendation be officially transmitted to the Wells National Testimonial Fund Committee, by the Secretary of the American Medical Association.

Respectfully submitted,

HENRY A. LUCE, Chairman.
CHARLES G. STRICKLAND.
LUCIUS F. DONOHUE.
ROBERT A. PEERS.
ROBERT H. HAYES.

Dr. Luce moved that the report of the reference committee be adopted. The motion was seconded by Dr. Henry S. Ruth, Section on Anesthesiology. After discussion by Drs. Allen H. Bunce, Georgia, Henry S. Ruth, Section on Anesthesiology, Holman Taylor, Texas, and Dr. Luce, the report was referred back to the reference committee, on motion of Dr. James R. Miller, Connecticut, seconded by Dr. Lloyd Noland, Alabama, and carried.

Report of Reference Committee on War Participation

Dr. James R. McVay, Chairman, presented the following report, which on motions of Dr. McVay, duly seconded and carried, was adopted section by section and as a whole after discussion by Dr. Francis F. Borzell, Pennsylvania, and Dr. McVay:

1. Your Reference Committee on War Participation met and considered the printed report of the War Participation Committee in the Handbook and the remarks of Dr. Walter Donaldson, chairman of the committee, before the House of Delegates. It desires to commend the work of this committee.

The fact that but twenty states have responded to the request for the creation of special committees of War Participation leads us to reemphasize that portion of the report in order that the delegates from states not having such a committee may urge their respective state societies to create such a special committee. It seems to us that these committees may be of great help in cementing the home ties and continued morale of those in the service and those who remain at home.

Service bulletins and mimeographed letters such as those of Oregon, Ohio, Pennsylvania and numerous other state and county societies serve to keep the men in the service in active contact with their home community activities and are a most useful activity of War Participation committees.

2. War Participation committees that have secured the publication of the names of service members in local newspapers, county medical society bulletins and other such means help to acknowledge the patriotism of those of us who are in their country's service. Public exercises of service flag unveilings and of memorial plaques with addresses by local and state administrative officials help to create statewide recognition of the unselfish devotion of the medical profession toward the successful prosecution of the war effort. The voluntary enlistment of nearly 50,000 American physicians in the service of their country is a fitting challenge to those who would charge the profession with selfishness. The continued emphasis and publicity of this endeavor of patriotism now and after the war is won is a worth while activity of War Participation committees.

The protection and securing of economic and professional rehabilitation of members of the profession returning from service is a lofty ideal but can help those men only when it is translated into action. The establishment of loan funds by county societies, through the efforts of War Participation committees, can be of material assistance to returning medical veterans in reestablishing themselves in their practice and is a commendable and worthy effort.

Respectfully submitted,

JAMES R. McVAY, Chairman.
EDWARD JELKS.
JAMES P. WALL.
ANDREW F. McBRIDE.
WILLIAM D. JOHNSON.

Report of Reference Committee on Postwar Planning

Dr. Walter F. Donaldson, Chairman, presented the following report, which was adopted as a whole, on motion of Dr. Donaldson, seconded by Dr. John Z. Brown, Utah, and carried:

Your reference committee is fully appreciative of the foresight which led early in 1943 to the American Medical Association assuming the leadership in planning for postwar medical service. It recognizes the wisdom which resulted in close cooperation with the American College of Physicians and the American College of Surgeons and later with the invaluable

relationships established with hospital associations, with American medical colleges, with state licensing boards and with others.

The complexity of the problem involved is illustrated by variation in the age and in the extent of previous medical training and experience of the approximately 50,000 physicians in military service. To meet adequately the needs and the desires of these thousands on their release from duty with the Army, Navy, Public Health Service and other war related services will undoubtedly at times try the skill of the planners and the patience of the doctors anxious to return to their pre-war practice or to graduate training preliminary to entry into their chosen fields.

The good work of the Committee on Postwar Medical Service has undoubtedly been climaxed in the pilot postwar planning questionnaire mailed in February and March to 3,000 medical officers on duty with the armed forces as they were selected, 1 in every 15 names from an alphabetical machine record list of all medical officers on duty on the first of last October.

Your reference committee is informed that the first report on the findings of this generous sample group of completed questionnaires returned as they have been prepared by Lieut. Col. H. C. Lueth, Liaison Officer with the American Medical Association, is to be published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of June 24. This initial analysis will doubtless be followed by others appearing in THE JOURNAL, and the anticipated needs of the returning doctors may thus be clarified state by state to a degree limited only by the enthusiasm and energy with which state medical associations may see fit to collaborate with the postwar planning committee of the American Medical Association in this most important service to the public and our thousands of returning fellow physicians.

The Committee on Postwar Medical Service is deemed equally worthy of the full support of this House of Delegates in its recommendations for the development at headquarters of the American Medical Association of a trustworthy source of information available to all returning medical officers. These forms of advance preparation plus experience, which the Council on Medical Education and Hospitals is anxious to develop in behalf of and through the expressed needs of returned medical officers for whom the war is already over should promptly and effectively aid in delineating the extent and type of graduate instruction now desired by those who entered medical service for the armed forces at experience levels ranging from incompleting internships to the last word in specialists' training. These our colleagues are not to be forgotten, and the individual members of the 1944 House of Delegates may best implement the plan of the Committee on Postwar Medical Service by studiously reviewing each published interpretation of postwar desires as revealed by the returned questionnaires and by then stimulating postwar service committee action at state and county levels.

Your reference committee closes its report by transmitting to this House of Delegates and the great membership thus represented the cordial invitation of the Committee on Postwar Medical Service to all constantly to make use of the planning committee's facilities at headquarters of the American Medical Association in the coordination of constituent and component society endeavors to accomplish that which should be our common purpose now as always, to "promote the science and art of medicine and the betterment of public health."

Respectfully submitted,

WALTER F. DONALDSON, Chairman.
GEORGE F. LULL.
HAROLD W. SMITH.
WILLIAM A. COVENTRY.
HENRY R. VIETS.

Reference Committee on Sections and Section Work

Dr. L. W. Larson, Chairman, presented the following report, which on motion of Dr. Larson, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, was adopted:

The prominence which the annual session of the American Medical Association has maintained for many years is due primarily to the excellent scientific programs which have been presented. The Council on Scientific Assembly, with the assistance of the section secretaries, is responsible for this record of achievement and should be highly commended for its work. It is to be especially commended for the excellent program arranged for this year, in spite of many difficulties incident to the war emergency.

Your reference committee wishes to reemphasize the desirability of providing scientific papers of interest to the general practitioner in both the Section on Miscellaneous Topics and the General Scientific Meetings.

Respectfully submitted,

L. W. LARSON, Chairman.
WILLIAM WESTON.
JEAN P. PRATT.
J. ARCHER O'RIILLY.
R. D. BERNARD.

Report of Reference Committee on Hygiene and Public Health

Dr. Don F. Cameron, Chairman, presented the following report:

1. Supplementary Report of Council on Industrial Health: The Supplementary Report of the Council on Industrial Health was approved by the Board of Trustees and was referred to this reference committee for further study and recommendation. A copy of this report was given to each member of the House at the Monday session. This report was approved by the Council on Industrial Health after consultation with representatives from the American Federation of Labor, the Congress of Industrial Organizations, the National Association of Manufacturers, the United States Chamber of Commerce and the Joint Claims Committee of the Stock and Mutual Casualty Insurance Companies. Because of the current importance of placing the disabled in suitable employment, each of the listed conferees is asking for ratification of this report by the respective parent organization.

This report appeared to your reference committee to have been very well prepared. It deals concisely with the purpose, scope, general procedures, equipment and records advised in this work, together with recommendations as to the type of examinations involved and gives suggestions as to the personnel and costs and outlines a suitable procedure for review of, and appeal from, examinations and decisions.

Your reference committee recommends that the House of Delegates approve this Supplementary Report of the Council on Industrial Health.

2. Resolutions on Giving Intelligent Instruction in Science and Biology to the Youth of America and Proposed Resolutions Regarding Health Education in Secondary Schools: The Board of Trustees approved and sent on for presentation to the House of Delegates the resolutions adopted by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. These resolutions have to do with the teaching of health education and biology in secondary schools.

In pursuance of the action of this House of Delegates a year ago, the Bureau of Health Education submitted the resolutions to the Joint Committee on Health Problems in Education of the American Medical Association and the National Education Association. The joint committee thoroughly approved the basic idea that sound teaching in hygiene is dependent on a real understanding of the fundamentals of biology involved. It emphasized its reluctance to urge this biologic instruction on the schools until there was available a teaching personnel capable of handling the subject in a really constructive way, avoiding nonessential controversial features. It outlined in some detail some subjects recommended for emphasis, such as the role of bacteria and parasites in disease, cell growth in relation to heredity and malignant disease, an accurate vocabulary in matters pertaining to sex and reproduction, and an intelligent understanding of the theories and basic facts of biologic genesis and evolution.

Your reference committee approved in general the report and recommendations of this joint committee. It thought advisable to recommend modification of one of the basic resolutions of the joint committee by inserting the phrase "with collaboration of suitable medical authorities," so that this portion of the resolution will read "The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association endorses the recommendation of the Office of Education that schools throughout the country provide, with the collaboration of suitable medical authorities, programs of health education for all secondary school students. . . ."

With this modification, your reference committee commends and endorses the outline and recommendations for the teaching of biologic science and physical fitness suggested by the joint committee.

3. Resolution on Report of Council on Medical Service and Public Relations Dealing with Tuberculosis: To this committee was also referred that portion of the report of the Council on Medical Service and Public Relations which has to do with a communication received by it from the National Tuberculosis Association requesting the Council's approval of a resolution on the control of tuberculosis. The Council approved a revised resolution as printed in the Supplementary Report emphasizing in particular "that it is necessary to extend procedures for careful, continuous supervision of the tuberculous by practicing physicians, who, in cooperation with duly constituted health authorities, federal, state and local, are in a position to deal with these problems by modern methods to prevent the spread of this communicable disease."

Your committee recommends the approval of the resolution as printed in the Council's report.

4. Survey of Centers for Diagnostic Aid to Physicians: The question of centers for diagnostic aid to physicians was considered by the Council on Medical Service and Public Relations. It recommended that surveys as to the need of such centers be made preferably by the "local communities concerned." The Council recommended that the American Medical Association should "stand ready to assist local communities" in developing these centers where need for them was established.

Your committee believes that the Council intended to state but perhaps neglected to make it clear that such surveys should be made by or in consultation with the physicians of the communities concerned and that the most valuable aid which the American Medical Association could render in the majority of instances would be to make available to qualified physicians information as to what communities these surveys showed to be in need of competent diagnostic facilities.

Respectfully submitted,

DON F. CAMERON, Chairman.
WALTER W. KING.
STEPHEN E. GAVIN.
R. C. WILLIAMS.
STANLEY H. OSBORN.

Each section of the report of the reference committee was adopted on motions of Dr. Cameron, duly seconded and carried.

Dr. Cameron moved that the report of the reference committee be adopted as a whole. After discussion by Dr. Stanley H. Osborn, Section on Preventive and Industrial Medicine and Public Health, Dr. Holman Taylor, Texas, Dr. Cameron and the Speaker, it was moved by Dr. G. Henry Mundt, Illinois, seconded by Dr. Mather Pfeifferberger, Illinois, and carried, that the portion of the report referring to modification of the recommendation of the Joint Committee by inserting the phrase "with collaboration of suitable medical authorities" in one of the basic resolutions of the Joint Committee on Health Problems in Education be reconsidered.

On motion of Dr. G. Henry Mundt, Illinois, seconded by Dr. A. A. Walker, Alabama, and carried, that portion of the report of the reference committee was rereferred to the reference committee.

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. Raymond L. Zech, Chairman, presented the following report, which on motions of Dr. Zech, duly seconded and carried, was adopted section by section and as a whole:

1. Proposed Amendment to Constitution Affecting Physicians in Veterans Facilities: Your reference committee feels kindly toward recommended changes affecting the Veterans Facilities and approves in principle the suggested changes. It met in conference with representatives of the Judicial Council. The problems presented were too numerous for the committee to recommend any specific changes at this time. It recommends, however, that the matter be taken up by the Board of Trustees and that the Board report on this matter at the next annual session.

2. Proposed Amendments to By-Laws, Chapter XII, Sections 2 and 3: Your reference committee approves in principle the proposed amendments to sections 2 and 3 of chapter XII of the By-Laws of the American Medical Association submitted by the delegate from the District of Columbia. It requests that the Board of Trustees study these proposed amendments and bring in a practical solution at the next annual session.

3. Supplementary Report of Council on Medical Service and Public Relations: In reviewing the supplementary report of the Council on Medical Service and Public Relations, your reference committee approves of the portion of that report dealing with the Bureau of Medical Economics and its duties but approves only in principle that portion of the report relating to the Veterans Administration.

The report of the Council on Medical Service and Public Relations that relates to students was reviewed. Your committee approves of the proposed change and suggests that the student members consist of those medical students who are in their clinical years of study.

Your reference committee recommends the adoption of this report.

4. Proposed Amendments to the Constitution and By-Laws Dealing with Apportionment of Delegates: Two amendments were introduced which would affect the apportionment of delegates, and one of these would change the entire idea of the apportionment of delegates, suggesting that apportionment be made on the basis of population. Population is hard to estimate today because of the war, there having been a great migration of people. Relocation must be anticipated following the war, and therefore it appears that apportionment on the basis of general population is not feasible at this time.

Your reference committee disapproves of any change from the present method of apportionment.

5. Proposed Amendment to Constitution, Article 6, Section 3, Introduced at the 1943 Session and Contained in the Report of the Secretary: Since the Board of Trustees of the Association represents the medical profession as a whole rather than geographic areas, your reference committee feels that the appointment of Trustees on a geographic basis is unwise and impractical. It therefore recommends that this amendment be not adopted.

6. Report of Judicial Council: In reviewing the report of the Judicial Council, your reference committee is in complete accord with the Council's clarification of the purposes outlined in the Principles of Medical Ethics and therefore recommends the adoption of the report.

At this time your committee wishes to take cognizance of the conscientious and persevering efforts of the Judicial Council under the brilliant leadership of the Chairman, Dr. George Edward Follansbee, who has devoted many years in establishing a Council which has faithfully and patiently helped solve many important problems. Dr. Follansbee's clear thinking and judicial attitude enhanced by his unquestionable loyalty to his organization sets an example for all of us. Your reference committee therefore takes this opportunity to express its deep appreciation of his untiring efforts. Furthermore, it is its sincere wish that we may continue to have the privilege from his wealth of experience and wise counsel.

Respectfully submitted,

RAYMOND L. ZECH, Chairman.
L. G. CHRISTIAN.
HARRY V. PARYZEK.
WALTER E. VEST.
CHARLES E. MONGAN.

Report of Reference Committee on Reports of Officers

Dr. George W. Kosmak, Chairman, presented the following report, which on motions of Dr. Kosmak, duly seconded and carried, was adopted section by section and as a whole:

1. ADDRESS OF THE SPEAKER, DR. H. H. SHOULDERS

It is a pleasure to commend the faithful service of your Speaker, who has concluded six years of service in this important position. His address speaks for the devotion which he has given to the onerous duties imposed on him and constitutes an evidence of the efforts which he has expended on behalf of the Association's interests. Your reference committee is in accord with the ideas expressed in the address and commends in particular his refutation of the arguments advanced in THE JOURNAL article to which reference is made, written by a prominent advocate of socialized medicine who himself is not a physician. Your reference committee believes that this refutation deserves careful attention by the medical profession.

Your reference committee desires again to express to the House of Delegates its appreciation of the excellent service rendered by this faithful officer in presiding so efficiently over the deliberations of this body.

2. ADDRESS OF THE PRESIDENT, DR. JAMES E. PAULLIN

It is a privilege to have listened to the extremely able address of our President, and your reference committee desires to make the following comments on its principal features:

(a) Wartime Graduate Medical Meetings: It is a great satisfaction to note the extended attention which has been given to this important activity by the American Medical Association and the personal interest of the President in it. The lecturers who have given their time and effort as a contribution to the war effort are to be highly commended, and approval should be given to the decision that the Association has contributed the necessary funds for this activity in cooperation with the American College of Surgeons and the American College of Physicians. Your reference committee regards this as money well spent and agrees that this type of instruction should be carried to the smaller hospitals and other medical communities distantly removed from the larger medical centers. This activity points the way for the development of more effective postgraduate instruction in the future, and the process of decentralization involved in this type of teaching is to be commended.

(b) Postwar Planning: Your President calls attention to the necessity for developing the proper type of instruction for medical men discharged from the armed services. Your reference committee commends his suggestion for the establishment of a bureau of information in the central office in Chicago and likewise the effort to stimulate the state and county societies to establish local offices which are to cooperate with that bureau in bringing the necessary information to those who desire it. This central bureau might also serve the purpose of affording to practitioners of medicine the opportunity for location in new communities, and this matter should be given adequate publicity. It would appear desirable if this particular activity could be developed into a permanent establishment under the immediate control of the Board of Trustees. Your reference committee suggests that steps be taken to carry out the recommendation.

(c) The Supply of Medical Students: This matter is dealt with under separate resolutions which have already been given consideration. Nevertheless, your reference committee desires to stress the importance of the movement for a continuing supply of students adequate for all anticipated medical needs.

(d) Rehabilitation of the Disabled: Your reference committee desires to commend the unification and expansion of efforts in this direction and suggests that the American Medical Association should be prepared to offer its services to implement this program whenever requested.

(e) Provision of Medical Care: Your reference committee desires to call the attention of the House of Delegates to remarks of the President with reference to the necessity for formulating policies for the guidance of the various officers of the Association and the House of Delegates in dealing with all questions concerning medical care. Such a statement should note the extent to which the federal government and other agencies interested in medical service have entered various

fields and enlist the cooperation of the profession in a combined program, the fact being borne in mind, however, that the control of funds and other details should be left to the state and local agencies.

(f) **Unity Within the Organization:** This seems to your reference committee to constitute a very important item in the President's address and calls for a unanimity in whatever official action may be taken by the Association through the medium of the House of Delegates and the constituent bodies of the Association. Your committee feels that it is desirable to iron out differences of opinion as to policies and other matters on the floor of the House rather than independently, so that the spirit of unity may be observed in those great questions which involve the entire profession.

In conclusion, your reference committee desires to compliment again the present incumbent of this high office for the faithful attention he has given to his important duties and for the carefully thought out recommendations contained in his report. It bespeaks for them the well deserved attention which they merit.

3. ADDRESS OF THE PRESIDENT-ELECT, DR. HERMAN L. KRETSCHMER

Your reference committee desires to commend the outspoken address of the President-Elect and to submit the following comments:

Regarding his suggestion that the education of the public particularly in social medical questions be more freely participated in by the general practitioner and family physician, it would be well if every member of the profession would make a personal effort to explain to patients, whenever the opportunity offers or can be made, the problems with which medicine is faced, and particularly the results of governmental dictation and supervision of medical practice.

The President-Elect calls attention to the prevalence of neuropsychiatric problems in the life of the nation. This situation seems to be of great proportion, and your reference committee commends his suggestion for the comprehensive study of the mental health of our people by all branches of our profession.

Your reference committee also desires to endorse his suggestion that the Council on Medical Education and Hospitals give further consideration to improvements in the teaching of pharmacology in medical schools, particularly as this applies to prescription writing and drug therapy.

Your reference committee commends the suggestion that, in addition to the preliminary program devoted to the interests of the general practitioner, consideration be given to the recommendation that each of the special sections devote one of its sessions to the presentation and discussion of papers devoted to matters of interest to the general practitioner. The American Medical Association, among its other responsibilities, should retain as one of its signal aims the conception that it constitutes an important educational institution both for the medical profession and for the public at large.

Respectfully submitted,

GEORGE W. KOSMAK, Chairman.
CARL R. STEINKE.
ARTHUR S. RISSE.
THOMAS A. PITTS.
WALTER G. PHIPPS.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. E. S. Hamilton, Chairman, presented the following report, which, on motions of Dr. Hamilton, duly seconded and carried after discussion, was adopted section by section:

REPORT OF SECRETARY

Your reference committee has reviewed the complete report of the Secretary and commends it for its information, completeness and brevity. It recommends the acceptance of the report as presented in the Handbook.

REPORT OF BOARD OF TRUSTEES

The report of the Board of Trustees is so lengthy and exhaustive that it is possible to review only the high spots in it and to comment on and make recommendations in those

controversial questions in which the House of Delegates has not previously taken definite action or where new conditions have arisen necessitating clarification of their previous position.

1. **Income and Expense:** On first reading, the net income of the Association for the current year seems very high; but when the depreciation in equipment of the physical plant, the curtailment in the salary and expense of personnel as well as the volume of proposed new expenditures is understood, it seems advisable that a surplus should be accumulated for the lean years which may come after the cessation of the hostilities. The responsibility of the American Medical Association to returning medical officers is great and the potential expense can be large in the immediate postwar years. Accordingly, after due consideration, it is the opinion of your reference committee that the Board of Trustees should be commended for its careful financial management. Your reference committee commends the Board of Trustees for instituting group life insurance and retirement annuity plans for their employees, and your reference committee recommends the approval of this part of the report of the Board.

2. **THE JOURNAL and Other Publications of the American Medical Association:** THE JOURNAL continues to be well managed and edited. Careful reading thereof will keep the subscriber abreast of scientific, economic and special wartime activities of the various governmental agencies. It is particularly encouraging to notice a gain of 4,760 in subscriptions to THE JOURNAL. The report on special journals, lending library, QUARTERLY CUMULATIVE INDEX MEDICUS, HYGIEA and the American Medical Directory show the extensive activities in the publishing field. Your reference committee commends the Board of Trustees and the editors for their fine work and recommends the approval of this section of the report of the Board.

3. **Cooperative Medical Advertising Bureau:** This bureau continues to render excellent cooperation to the state journals associated with it. Your reference committee recommends the approval of this section of the report of the Board.

4. **The Council on Pharmacy and Chemistry:** This council continues to work cooperatively with federal agencies, the American Pharmaceutical Association, the Council on Industrial Health and many other organizations. It has continued its regular publications and encouraged research by grants. It investigates new drugs, reporting its findings through ethical channels to the medical profession.

The resignation of Dr. W. C. Rose, a member of the Council for seven years, is noted with regret. Your reference committee recommends approval of this section of the report of the Board.

5. **Chemical Laboratory:** The Chemical Laboratory continues to work cooperatively with the Council on Pharmacy and Chemistry as well as with the Bureau of Investigation, governmental agencies, professional groups and manufacturers. Your reference committee recommends approval of this section of the report of the Board.

6. **Council on Physical Therapy:** Publications include the Manual of Physical Therapy and that of Occupational Therapy. The Manual of Physical Therapy is being revised. This council has given attention to artificial respiration, the education of technicians, audiometers and hearing aids, ophthalmic charts and ultraviolet radiation for disinfection purposes. Your reference committee recommends approval of this section of the report of the Board.

7. **Council on Foods and Nutrition:** This council has been active in the matter of nutritional education, working with groups of the food industry and the government. It has been concerned with nutritional research and education. Many articles have been published, and the Handbook of Nutrition has been brought up to date. Your reference committee recommends commendation of this section of the report of the Board.

8. **Council on Industrial Health:** This council shows a continuous growth in its contacts with the medical profession, government, labor, insurance companies, the National Association of Manufacturers and the United States Chamber of Commerce. Medical schools have become interested in undergraduate instruction. Attendance at the annual congresses on

Industrial Health has increased. It contemplates a certifying board in the field of industrial health. Its field of activity touches workmen's compensation, rehabilitation, nutrition in industry, industrial medical service plans and research on silicosis and burns. It has prepared a very comprehensive outline for physical outline of prospective employees, rating them under three classifications: (a) fit for all work; (b) fit for work under periodic medical review (1) with limited physical exertion, (2) in nonhazardous work, (3) with orthopedic defects, (4) with defective vision, (5) with defective hearing and (6) with neuromental handicaps; (c) unfit for work at time of examination.

The physical examination blank is very complete, but your reference committee doubts if most corporations would insist on a blood smear, examination of the eye background, sedimentation rate, chest x-ray examination and Wassermann test except for food handlers.

The outline for physical examination is excellent and complete but possibly too exhaustive to be practical.

Your reference committee recommends approval of this section of the report of the Board.

9. Report of the Bureau of Legal Medicine and Legislation: Postwar medical licensure of recent graduates who have been prevented from licensure by entry into government service should be studied and given assistance. Isonipocaine, Demerol or any morphine substitutes should be brought under federal control because of their habit forming tendencies. Lectures on medical jurisprudence should be encouraged. The enacted federal legislation to commission female physicians in the medical corps of the Army and Navy to have the same pay and allowances and to be entitled to the same rights as members of the Officers Reserve Corps of the Army and Naval Reserve with the same grade and length of service meets with approval.

Twenty-four million two thousand dollars allotted to states for obstetric and pediatric care for wives and infants of service men is not entirely satisfactory and will be reported on by another reference committee, but the sum of \$200,000 for the relocation of physicians in critical areas is apparently inadequate.

The proposals for a vastly expanded program for the construction of additional hospital facilities for veterans of World War II are proper and timely, even though more than 80 per cent of all admissions have been for disabilities not connected with service.

The laws enacted for providing for the vocational rehabilitation of veterans under the direction of the Veterans Administration and of disabled civilians under the direction of the Office of Vocational Rehabilitation in the Federal Security Agency and a bill appropriating \$26,100,000 for the medical care of recruited and migrant farm workers have progressed beyond influence but meet with approval of your committee.

Other pending legislation contemplating a codification of federal laws relating to the United States Public Health Service, a study of human nutrition and nutritional value of food, the treatment of Selective Service registrants infected with venereal disease, the employment of alien physicians by the Bureau of Indian Affairs, a permanent medical corps in the Veterans Administration and the creation of a Bureau of Vital Records in the Public Health Service seemingly require further study and investigation.

The enacted legislation to provide a nurse training program administered by the Public Health Service, for which \$52,500,000 has been appropriated to date, has already progressed beyond the point where we might be of influence or service.

The special committee created to investigate the education and physical fitness of the civilian population as related to national defense is probably already at work, and it might as well be authorized to investigate the aid available to the physically handicapped.

The proposed legislation to commission optometrists and morticians as officers of the Army and Navy Medical Corps cannot be supported by the Association for obvious reasons.

The other bills providing for medical care to the recipients of public assistance, that insecticides containing arsenic or fluorine be distinctly colored, a broadening of the Social Security Act to include employees of religious, charitable, scientific and certain other organizations and to provide postwar

educational opportunities for service personnel contain nothing evidently objectionable.

The granting of military rank to members of the Navy and Army Nurse Corps and to authorized service in the medical reserve corps to be counted for pay purposes can be supported.

A publicly supported adult education program for which federal legislation is pending seems to be of doubtful value, as this is already made accessible by local educational institutions and universities.

Compulsory health insurance has been properly opposed heretofore, and the pay as you go income tax has been adequately explained in THE JOURNAL.

A pending bill conferring jurisdiction over industrial hygiene on labor departments requires additional study.

10. Report of Bureau of Public Relations: The report of the Bureau of Public Relations is purely informative and is satisfactory.

11. Bureau of Investigation: The duties of this bureau are to collect and dispense information concerning "patent medicine," quacks, frauds, and the like, to physicians, laymen, government authorities and other organizations, and it has continued to do efficient work in regard to the subjects which came within its province. Approval of this part of the report of the Board is recommended.

12. The Committee on Wartime Graduate Medical Meetings: This committee, having organized the teaching personnel and facilities of American medicine, has mobilized for the purpose of offering advanced instruction to medical officers of the armed forces and to civilian doctors. The program is arranged so as to cover the entire nation. The plan has proved to be a success, and the splendid work of the organization demonstrates the wisdom of the American Medical Association in having initiated the idea. Commendation of this section of the report of the Board is recommended.

13. Bureau of Health Education: Notwithstanding handicaps occasioned by the war, causing lessening of the work of the bureau in 1943, still the year was a busy one demonstrating continued usefulness. The work of this bureau is most important and arduous, preparing articles for THE JOURNAL and for HYGEIA, the arrangement of broadcasting radio programs and presenting public addresses and distributing pamphlets on important medical topics for the benefit of the profession and the public. By cooperation with various organizations such as the National Education Association, Parent-Teacher Associations and other groups of similar character, the bureau has carried its important message throughout the nation. Your reference committee commends the bureau for its splendid work.

14. The Committee to Study the Problems of Motor Vehicle Accidents: This committee has shown the careful investigation of this important subject. It calls attention to the various causes that contribute to accidents, both avoidable and unavoidable. It fears an enormous increase in accidents following the war on account of deteriorated cars, the need of construction and reconstruction of highways, increase in the speed limit and the unstable nervous system of drivers who return from the war. The committee suggests that, after all, the greatest problem is neither the road nor the car but the human element. It emphasizes the hazard of drivers under the influence of alcohol and gives statistics to show that 11 per cent of drivers involved in fatal accidents were drinking. They suggest that the doctor could be of great assistance in lessening these accidents by having applicants for drivers' licenses examined by medical men to determine such physical defects as the impaired limb, poor vision and deafness, and other disqualifying conditions. It offers the suggestion that the doctor may render good service to his patient when he discovers a condition of the patient that makes it unsafe for him to drive and so advises. Your reference committee commends the work of the committee on this most important subject.

15. Communication from Members of Committee on Conservation of Vision: A communication was received from members of the Committee on Conservation of Vision. Your reference committee finds that the Committee on Conservation of Vision is confronted with so many obstacles that it cannot function until these obstacles are removed. It is therefore

recommended that the communication from members of the committee be deleted from the report of the Board of Trustees and the committee be discontinued.

16. Office of Liaison Officer: The report of the Board of Trustees on the work of the Office of Liaison Officer is approved and the services of the Liaison Officer to the American Medical Association are commended.

17. Proposed Plan of American Medical Association for Postwar Education: The proposed plan of the American Medical Association for postwar education and cooperation with returning medical officers was reviewed by your committee. A joint committee consisting of members of the Board of Trustees of the American Medical Association and members of the American College of Physicians and the American College of Surgeons as well as other agencies has had several meetings and has worked out a rather definite plan for reeducation of returning veterans, assistance in location, cooperation with medical schools for postgraduate work and a study of economic conditions throughout the United States. While the committee is not ready at this time to make a definite report, it is safe to report that the matter apparently is well in hand, that questionnaires are ready for transmission to all members of the armed forces as to what their needs are in regard to postwar assistance. Already considerable money has been spent in this work, and more has been earmarked for this service. The committee is reporting this at this time so that the House of Delegates may know that this work is under way, that the returning medical officers are being consulted as to their needs and that the Trustees of the American Medical Association are alert to the responsibilities of organized medicine to its members in the armed forces. Your reference committee recommends approval of this section of the report of the Board.

18. Bureau of Exhibits: The report of the Bureau of Exhibits is of especial interest, as it shows the scope of its activities both at the time of the annual session and throughout the current year. Its value as an educational feature is probably little understood by the profession at large, but the work of the bureau is highly commended by your reference committee.

19. Resolution Requesting Board of Trustees to Prepare a Concise Statement of Achievements of the Medical Profession for Submission to Boards of Education: The Board of Trustees feels that the intent of the resolution has been accomplished through publication of material on the achievements of medicine in practically every issue of *HYGEIA* and also through several histories of medicine which have been published recently. After careful consideration of this report it was the opinion of your reference committee that this report should be referred to either the Reference Committee on Medical Service and Public Relations or to the Reference Committee on Medical Education.

20. Report of Conference of Committee Consisting of Three Representatives Each of the American Medical Association and the American Hospital Association: Your reference committee had a rather prolonged hearing with the pathologists representing the American Society of Clinical Pathologists and members of the Board of Trustees. It recalls to your attention the agreement of 1939 between the Board of Trustees of the American Medical Association and the special committee of the American Society of Clinical Pathologists as well as representatives of the American Hospital Association and the American College of Surgeons. After careful consideration it recommends the reaffirming of the agreement of 1939, since no evidence has been offered which could serve as the basis of any alteration at this time.

Respectfully submitted,

E. S. HAMILTON, Chairman.
OLIN H. WEAVER.
J. B. LUKINS.
ROBERT E. SCHLUETER.
FRANCIS J. SAVAGE.

Section 19 in the report of the reference committee, dealing with the report of the Board of Trustees which refers to the Resolution Requesting Board of Trustees to Prepare a Concise Statement of Achievements of the Medical Profession for Submission to Boards of Education, was referred to the Reference Committee on Medical Education, on motion of Dr. Hamilton, duly seconded and carried.

The reference committee was requested to bring in a report on the Communication from the American Optometric Association and on the Legislative Recognition of Cultists, both contained in the report of the Board of Trustees as printed in the Handbook.

: On motion of Dr. Lee O. Frech, Illinois, seconded by Dr. Robert H. Hayes, Illinois, and carried, the report of the Reference Committee on Reports of Board of Trustees and Secretary was adopted as a whole.

Report of Reference Committee on Hygiene and Public Health

Dr. Don F. Cameron, Chairman, presented the following report referring to modification of the recommendation by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association:

Your reference committee recommends that the modification of the recommendation by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association be amended to read "with collaboration of suitable medical and health authorities" instead of "with collaboration of suitable medical authorities" as presented in its report previously submitted, so that the sentence containing this phrase in the report of your reference committee as presented earlier this morning should now read "The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association endorses the recommendation of the Office of Education that schools throughout the country provide, with the collaboration of suitable medical and health authorities, programs of health education for all secondary school students. . . ."

Dr. Cameron moved the adoption of the report as amended, and the motion was seconded by Dr. John Z. Brown, Utah, and carried.

On motion of Dr. Cameron, seconded by Dr. G. Henry Mundt, Illinois, and carried, the report of the Reference Committee on Hygiene and Public Health previously presented and as now amended in this report was adopted as a whole.

NEW BUSINESS

Resolution on Simplification and Standardization of Insurance Forms

Dr. Harry V. Paryzek, Ohio, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, There is a need for the simplification and standardization of forms used by private insurance companies in obtaining information and written opinions from physicians regarding policyholders; and

WHEREAS, The adoption by insurance companies of a simplified uniform method of obtaining medical reports would produce more statistical data of greater value to insurance companies, to the medical profession and to the public health agencies; and

WHEREAS, Use of a simplified uniform method of obtaining medical reports would materially assist in alleviating some of the burdensome paper work which physicians are required to do for insurance companies and policyholders; be it

Resolved, That the Board of Trustees of the American Medical Association shall be instructed to arrange for a series of conferences between representatives of the American Medical Association and representatives of private insurance carriers with a view toward working out a mutually satisfactory plan to bring about simplification and standardization of forms needed to obtain data and opinions from physicians in the adjudication of claims.

Resolution on Consolidation of Federal Health Activities in a Single Federal Department

Dr. Stanley H. Osborn, Section on Preventive and Industrial Medicine and Public Health, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, the House of Delegates has repeatedly advocated the consolidation of federal health activities in a single federal department; and

WHEREAS, In 1936 the House of Delegates specifically recommended that any active efforts by governmental agencies to study and to take measures tending to eliminate occupational diseases should be carried out under the supervision of federal, state and local departments of health; and

WHEREAS, There is pending in Congress a bill, H. R. 4371, which provides five million dollars for use by the federal Department of Labor

for allocating to state departments of labor to initiate industrial health and hygiene programs, thus duplicating activities now engaged in by the U. S. Public Health Service and by the state departments of health; therefore be it

Resolved, That the American Medical Association hereby declares its opposition to the enactment of H. R. 4371 and reaffirms its belief that any extension of governmental activities in the field of industrial health and hygiene should be developed under the supervision and guidance of the U. S. Public Health Service and state departments of health.

Resolution on Lifting of Sex Discrimination from Young Women Desiring to Study Medicine

Dr. Emily D. Barringer, New York, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, It has been laid before this Association that a very serious crisis has arisen in the medical educational program of the United States, owing to the fact that the Army program has withdrawn its allotment to 28 per cent of the student body, leaving the larger percentage of students in the class of the physically disqualified men, group 4F and to women. This state of affairs has been confirmed by the chairman of the Procurement and Assignment Service, who sees in the near future a possible alarming shortage of physicians, and

WHEREAS, The Congress of the United States on April 16, 1943 enacted Public Law 38, permitting women physicians to secure commissions in the Medical Corps of the Army and Navy; and

WHEREAS, There has been considerable criticism that the number of women obtaining commissions has been disappointingly small, and

WHEREAS, There are many reasons for this small number, which are revealed by a careful study of the problem, as Procurement and Assignment rulings, curtailment of privileges, insurance benefits and others; and

WHEREAS, The woman student has been ignored in the accelerated educational program of the Army and Navy, being classified with the physically disqualified men and in no way receiving monetary or other help from the government; and

WHEREAS, There are many young women who would make excellent physicians if they had not been discouraged because of the sex limitation that has been placed on them; therefore be it

Resolved, That the American Medical Association go on record as lifting sex discrimination from young women desiring to study medicine and that the American Medical Association request the government to give aid to these young women in their medical education commensurate with that granted to the young men

Resolutions on American Medical Association Legislative and Public Relations Activities

Dr. George R. Dillinger, Indiana, introduced by title Resolutions on American Medical Association Legislative and Public Relations Activities, which were referred to the Reference Committee on Legislation and Public Relations

Resolutions on Speakers' Bureau

Dr. George R. Dillinger, Indiana, presented the following resolutions, which were referred to the Reference Committee on Reports of Board of Trustees and Secretary:

WHEREAS, The demand on the medical profession for speakers to lay and professional groups on subjects both economic and social that affect the public and medical profession is exceedingly great, and

WHEREAS, It is exceedingly desirable that the headquarters of the American Medical Association maintain more definite and frequent contact with the individual state societies, therefore be it

Resolved, That the House of Delegates of the American Medical Association request the Board of Trustees, when personnel becomes available, to secure men capable of serving as a speakers' bureau on a state's basis; and further be it

Resolved, That personnel be secured also to work with the Secretary of the Association in maintaining contacts with the constituent state societies.

Presentation and Address of Vice Admiral Ross T. McIntire

Dr. James E. Paullin, President, introduced Vice Admiral Ross T. McIntire, Surgeon General of the United States Navy, who addressed the House as follows:

Mr. Chairman, Dr. Paullin, Members of the House: It is always a privilege to come back here, especially when we have such a representative group from American medicine as we have in Chicago today. I think it has been too bad that we haven't been able to do this more in these past two years, but in spite of the transportation difficulties I think what we shall gain from the meeting this year will be of such tremendous value for the services that we won't mind congesting the trains and taking up a few of the spaces of some of the people who may think that they should have them.

I am very glad to have an opportunity to come before the House of Delegates and to say just one word of appreciation for the way that you people have been carrying on the work

in civil medicine. It is high time that we in the governmental services were giving much more serious thought to your problems, and that is one thing that I hope will also come from this meeting here in Chicago: what we can do to be helpful in the coming years, in these years when we shall be able to cut down the size of the medical requirements, and how we can best release medical personnel to such communities to take the load off the overworked men who are there now, especially the men in the older group. I feel very deeply about this and I can assure you that the Navy will do everything possible to help there.

We too are tremendously interested in this proposition of keeping the medical schools going. You have heard a great deal about that from your own officers. I am going to follow with the keenest interest the work that goes on in the committees and in this body in the recommendations that will be made, and not only recommendations, but we must have a follow through on this subject. The military services will need more doctors, but the civilian side of this country will need doctors much more than we in these next ten years, and so it is a very serious thing, one of deep concern to every one of us, that this subject is solved

I think the most important single thing that you have to decide here today is how we can do this, how we can find a way in this very critical time of war when all the young men are needed for combat service, to get the proper type of young man to come from the services, for that is where they must come from, in the main, and enter our medical schools—the right kind of material so that we have the proper kind of doctors in the years coming along.

I am not going to say any more than just that at this time. There will be a great deal said by men who have a very broad knowledge of this whole subject. I expect to do all that I can to help.

I have to go over now and talk to the ladies, your wives, and I am just thinking what I may say to them. Well, I can, fortunately, talk about much more pleasant subjects than this subject of how to get medical students. But, seriously, I hope that we shall come up with something constructive on this. Let's see if we can't find a way to make the people of this country realize that the health of this nation following this war is going to be one of the most important things that we shall have to look after for some time.

Introduction and Address of Dr. T. C. Routley of Canada

The Speaker introduced Dr. T. C. Routley, Secretary of the Canadian Medical Association, who addressed the House as follows:

Mr. Speaker and Members of the House of Delegates of the American Medical Association: Once again it is my proud privilege to bring before you the greetings of the members of the medical profession of Canada. On another occasion I said to you that we have a law in Canada which says that if a highway has been kept open for twenty-one years unimpeded it then becomes an open highway for all time. I claim that privilege this morning. I have been coming to you for twenty-one years and you have never stopped me, you have received me with open arms, and it would seem to me that in the future, Mr. Chairman, I should never question, as I never have in the past, the cordiality of your welcome, the breadth of your friendship and the desire you have always shown in giving me any information I asked for and in sending back to your brother practitioners in Canada the expression of your good will.

This morning as we meet here the eyes of the world are focused on the United States, Great Britain and Canada, but that focusing point is not in the United States or in Great Britain or in Canada. That focusing point is on the narrow strip of land in Normandy. There, under the direction of your great General Eisenhower, Britishers, Canadians and citizens of this great United States have embarked on the greatest war, the greatest achievement in the history of the world. I am sure before this great Association adjourns you will join your voices with all the rest of the men of good will in offering prayers for the success of your boys and ours on that venture.

I should like to think, Mr. Chairman, that when this war is over there will be another great meeting of Americans, Britishers and Canadians when you come back to us to repay the visit to us that we have long looked for, when your Association and the British Medical Association and the Canadian Medical Association may meet together in Canada. We will promise you that when and if you come we will extend to you, or at least we shall try to extend to you, the same affectionate greeting that you have always extended to me and my confrères when we have come to you.

May I once again thank you for your reception and promise you that in the next twenty-one years I hope to come back and I am sure that I can look forward to the days which lie ahead between your country and mine, where good neighbors will become better neighbors, if that were possible.

The House recessed at 12:30 p. m. to reconvene at 2 p. m.

Tuesday Afternoon, June 13

The House reconvened and was called to order at 2:15 p. m. by the Speaker, Dr. H. H. Shoulders.

The Speaker announced that under the provisions of the rules adopted yesterday the House was to go into Executive Session at 2 p. m. today, and asked whom the House desired to have present at that session.

Dr. Charles E. Mongan, Massachusetts, presented a list of those who should be permitted to be present at the Executive Session which as amended reads as follows:

Resolved, That the courtesies of the House of Delegates of the American Medical Association in executive session assembled be extended to the presidents of the several constituent state and territorial medical associations, to presidents, attorneys and active and executive secretaries of the constituent state medical associations and component county medical societies, to the editors of state journals, to the secretary of the Southern Medical Association, to the secretary of the Canadian Medical Association and to any Fellow of the American Medical Association present who has been certified as a Fellow in good standing and who has been vouched for by a member of the House of Delegates.

The amended resolution was adopted on motion of Dr. Mongan, seconded by Dr. E. G. Wood, Tennessee, and carried.

Executive Session

The Sergeants-at-Arms polled the House, after which the House went into Executive Session at 2 25 p. m., on motion of Dr. R. W. Fouts, Vice Speaker, seconded and carried.

Report of Reference Committee on Executive Session

Dr. Louis A. Bue, Chairman, presented the following report:

1. Resolution from National Medical Association: A resolution was presented to the Board of Trustees by the National Medical Association and referred by the Board to the House of Delegates without recommendation, which reads as follows:

WHEREAS, The present emergency has necessitated the induction of a large number of physicians into the armed forces of the United States and the number of Negro physicians for the care of their population was already too few before our entrance into the war in those sections of the country where the majority of the Negro citizens reside, and

WHEREAS, An opportunity for the scientific advancement of the Negro physicians, particularly in the South, is urgently needed; and

WHEREAS, The Negro physicians in that section of the United States are at present, because of constitutional or other reasons, excluded from many of the constituent societies of the American Medical Association, and

WHEREAS, In the present emergency an opportunity should be given by the aforementioned constituent societies to such Negro physicians as are qualified and who are members of the National Medical Association, to join the American Medical Association, and

WHEREAS, Many of the constituent societies of the American Medical Association, both South and North, have shown an increasing sympathy and helpfulness in the elevation of the standard of medical practice among the Negro physicians by allowing them use of their libraries, attendance at their scientific meetings and exhibits and the opportunity of practicing in municipal hospitals, we, the Liaison Committee, duly accredited and representing the National Medical Association, hereby

Resolve, That an appeal be made through the Board of Trustees and the House of Delegates of the American Medical Association to its constituent societies to continue and enlarge the opportunities for the elevation of the standard of medical practice among our Negro physicians by (1) Increasing municipal, county and state hospital facilities in which the Negro physician may practice, (2) allowing the members in good standing of the National Medical Association to become members of the constituent societies of the American Medical Association to the end that members of the National Medical Association, both South and North, may become members of the American Medical Association and thus enjoy the opportunities of the scientific features of the conventions

and partake more fully of the benefits of organized medicine; (3) until such changes as are necessary in the constitutions of the constituent societies of the American Medical Association can be brought about in those constituent societies which now exercise a bar to the membership of Negro physicians, that members of the National Medical Association be allowed the privilege of Associate Membership in the American Medical Association.

Respectfully submitted,

LIAISON COMMITTEE, NATIONAL MEDICAL ASSOCIATION.

DR. CLARENCE H. PAYNE, Chairman

DR. T. M. SMITH, President.

National Medical Association.

DR. JOHN T. GIVENS, Secretary.

National Medical Association.

Your reference committee has studied the resolution of the National Medical Association with interest and sympathy. It feels that the Negro physicians of this country should be offered every possible opportunity to improve their medical qualifications. It would urge component societies to extend all aid that is practical to the Negro physicians in their communities to the end that the quality of service rendered by them to their people may be steadily improved. It is recognized, however, that the decision as to membership in the component county medical societies or on hospital staffs is outside the jurisdiction of the American Medical Association and is a matter of local concern.

2. Resolutions on Council on Medical Service and Public Relations: Your reference committee has considered the Resolutions on Council on Medical Service and Public Relations introduced by Dr. J. R. Miller, Connecticut, which read as follows:

WHEREAS, The Council on Medical Service and Public Relations that was authorized by this House of Delegates at its annual meeting in 1943 has been created and is engaged on the program prescribed by the House of Delegates, be it now

Resolved, That this House approve and commend the activities and program of the Council on Medical Service and Public Relations as outlined in its several reports; and be it

Resolved, That this House urge the Board of Trustees of the Association to give ample financial support to the Council on Medical Service and Public Relations in order that its services may be extended and become more useful to the profession of medicine; and be it further

Resolved, That the Council on Medical Service and Public Relations be empowered to administer and direct the public relations activities of the American Medical Association that have to do with medical service and legislation.

Your reference committee has considered the resolutions of Dr. Miller of Connecticut and recommends the approval of the first and second portions of the resolutions and offers the following as a substitute for the third portion of the resolutions:

Resolved, That the Board of Trustees be urged to give early consideration to defining the status of the Council on Medical Service and Public Relations.

3. Resolutions on Secretary and on Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION: Your reference committee has given careful consideration to the resolutions from the California Medical Association dealing with the work of the Board of Trustees and the officers of the Association, which read as follows.

RESOLUTION ON SECRETARY OF THE AMERICAN MEDICAL ASSOCIATION

Resolved, That the Secretary of the American Medical Association be commended for his long, faithful and valuable service to American medicine and be assured of our affection and that the Board of Trustees be memorialized to appoint him as Secretary Emeritus for life on the expiration of his present term of office.

RESOLUTION ON EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

WHEREAS, The medical profession in America finds itself facing the most critical period of its existence, and

WHEREAS, Because of lack of understanding of basic issues and problems by certain officers of the American Medical Association, public opinion is turning against organized medicine, and

WHEREAS, These changes of public opinion allow various and certain pressure groups to advance their own selfish causes; and

WHEREAS, The political adherents of socialized medicine have seized on the rising tide of public criticism against organized medicine in an effort to accomplish their own desires, and

WHEREAS, The unnecessary continuous defensive attitude of some of the officers of the American Medical Association makes it impossible for them to take leadership in bringing about proper general understanding of the real public needs with respect to medical care and progress; be it

Resolved, That the House of Delegates of the American Medical Association requests the Board of Trustees to replace the present Editor of THE JOURNAL.

Never before has American medicine been so needful as now of unity. The desire to extend the high quality of medical service to all the people at a reasonable cost is the objective sought by all of us. Your committee is convinced that this can be attained more certainly if physicians throughout the nation would give their loyalty and support to those selected by this House of Delegates as members of the Board of Trustees and to the representatives selected by the Board itself.

Your committee commends the loyalty and the efficiency with which these officers have for many years served the Association in carrying out the policies established by the House of Delegates. Your committee would also commend the Board of Trustees of the Association for its judgment and wisdom in the management of the affairs of the Association.

Therefore the Reference Committee on Executive Session recommends that these resolutions be not approved.

4 Resolution on Washington Office: The following resolution was considered by your reference committee: Be it

"Resolved, By the house of delegates of the Idaho State Medical Association in session May 22, 1944, that we most heartily commend the action of the American Medical Association in opening an office in Washington, D. C., through which information relative to medical affairs may be freely furnished and legislative data relayed back to the profession, to the end that such reciprocal action may continue to support and enhance the high standard of medical care furnished to the American people. Therefore we petition the House of Delegates of the American Medical Association to take such action as may be necessary to limit the activities of the Editor to the editorship of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION."

This resolution, submitted by the Idaho delegate, was considered in conjunction with the California and Connecticut resolutions. In view of our recommendations on these two resolutions and the action of the House of Delegates, your reference committee recommends the rejection of this resolution.

5. Resolutions on Changing the Structure and Enlarging the Field of Activities of the American Medical Association: The following resolutions were referred to your reference committee:

The House of Delegates of the Michigan State Medical Society at its 1943 annual session instructed the Delegates from Michigan to the American Medical Association that they present the following resolutions:

WHEREAS, The American Medical Association in the United States is organized under charter provisions as laid down for organizing similar groups, and

WHEREAS, From the advice received it appears that under the purposes set forth in its Articles of Incorporation this organization is incorporated for the sole purpose of carrying on charitable, educational and scientific endeavor; and

WHEREAS, the advice received, at present, at least, is to the effect that the American Medical Association under its present charter has no right whatsoever to engage in economic or political activities but has only the right to engage in such activities as set forth above and as stated in the provisions of the laws under which this organization is incorporated, and

WHEREAS, The American Medical Association is at present exhibiting a most decidedly defeatist attitude because of these aforementioned provisions and is exhibiting this attitude principally expressed as because of fear of taxation and other fears, and

WHEREAS, The practitioners of medicine who support the American Medical Association desire that this medical organization in addition to the above set forth objectives, concern itself with economic and other aspects of medicine as well, and

WHEREAS, It would seem proper to change the complexion of the organizational setup for the association so that the American Medical Association might be eligible to engage in other than scientific, educational and charitable endeavor and if necessary to pay taxes, which might require the increasing of income or whatnot for this organization, and

WHEREAS, This suggested change should attain a free and untrammeled position for organized medicine in the political and economic structures of these United States of America so that the American Medical Association might assume its place as a force for the benefit of the practitioner of medicine as well as for the benefit of the patient served, realizing that good medicine depends, in part at least, on freedom from fear, which is one of the great freedoms recognized in the New Atlantic Charter, this present fear being fear of persecution and prosecution under the existing setup, be it therefore

Resolved, That the House of Delegates of the American Medical Association proceed to change and amend the organizational and incorporational setup of the American Medical Association so as to permit of economic and political activities being carried on by the American Medical Association; and be it further

Resolved, That the American Medical Association proceed to, if necessary, pay taxes, whatever may be assessed, and be it further

Resolved, That the Board of Trustees of the American Medical Association be requested to take appropriate steps to provide for necessary fiscal readjustment in the financial affairs of the American Medical Association so as to accommodate for such changes.

Your reference committee has given a great deal of consideration to these resolutions. It feels that the resolutions contain valuable suggestions but is not clear as to how these recommendations can be carried out from a practical standpoint. Therefore it recommends that these resolutions be returned to the Michigan State Medical Society for clarification and more specific recommendations.

The first section of the report of the reference committee, dealing with resolutions presented to the Board of Trustees by the National Medical Association, was adopted on motion of Dr. Buie, seconded by Dr. A. A. Walker, Alabama, and carried.

Dr. Buie moved approval of the second section of the report of the reference committee, approving the first two resolutions contained in the Resolutions on Council on Medical Service and Public Relations, and the motion was seconded by Dr. Thomas A. McGoldrick, New York, and carried.

It was moved by Dr. Buie, seconded by Dr. Lloyd Noland, Alabama, and carried, that the substitute offered by the reference committee for the third resolution contained in the Resolutions on Council on Medical Service and Public Relations be adopted.

Dr. Buie moved the adoption of the third section of the report of the reference committee, dealing with resolutions referring to the Secretary and to the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and the motion was seconded by Drs. A. A. Walker, Alabama, and G. Henry Mundt, Illinois. After discussion by Drs. Dwight H. Murray and E. Vincent Askey, California, and Dr. Buie, Dr. Buie moved that the third section of the report of the reference committee dealing with the resolution referring to the Secretary be adopted. This motion was seconded by Dr. G. Henry Mundt, Illinois, and carried.

It was moved by Dr. Buie, and seconded by Dr. G. Henry Mundt, Illinois, that the third section of the report of the reference committee dealing with the resolution referring to the Editor of THE JOURNAL, be adopted. There was discussion by Drs. Dwight L. Wilbur, California; A. A. Walker, Alabama; Henry A. Luce, Michigan; Allen H. Bunce, Georgia; Thomas S. Cullen, Maryland; William A. Mulherin, Georgia; G. Henry Mundt, Illinois, and Charles Gordon Heyd, Council on Medical Education and Hospitals, during which Dr. Morris Fishbein, Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION was given the privilege of the floor on motion of Dr. A. A. Walker, Alabama, seconded by Dr. G. Henry Mundt, Illinois, and carried. A vote by ballot was requested by Dr. Henry A. Luce, Michigan, seconded by Dr. Walter B. Martin, Virginia, and, after discussion by Dr. E. H. Cary, Texas, tabled on motion of Dr. Cary, duly seconded and carried. Dr. Morris Fishbein, on request, addressed the House.

It was moved by Dr. Charles E. Mongan, Massachusetts, seconded by Dr. William A. Mulherin, Georgia, and carried, that there be a rising vote on the adoption of Dr. Buie's motion to approve the third section of the report of the reference committee, dealing with the resolution referring to the Editor of THE JOURNAL. The Secretary announced that the vote was 144 approving that part of the reference committee's report to 9 opposing it, and the Speaker declared that section of the report of the reference committee adopted.

On motion of Dr. Buie, seconded by Dr. Robert E. Schluter, Missouri, and carried, the fourth section of the report of the reference committee, rejecting the Resolution on Washington Office, was adopted.

Dr. Buie moved that the fifth section of the report of the reference committee, recommending that the Resolutions on Changing the Structure and Enlarging the Field of Activities of the American Medical Association be returned to the Michigan State Medical Society for clarification and for more specific recommendations, be adopted. The motion was seconded by Dr. Walter E. Vest, West Virginia, and carried.

On motion of Dr. Buie, seconded by Dr. Mather Pfeiffer, Illinois, and carried, the report of the reference committee was adopted as a whole.

Report of Reference Committee on Legislation and Public Relations

Dr. Thomas A. McGoldrick, Chairman, presented the following report:

Your reference committee has received several resolutions from this House which overlap or duplicate others. For that reason your reference committee has grouped many of these together, as our report will show, and their subjects have been covered in the general report on the Council on Medical Service and Public Relations. The resolutions were as follows:

1. Resolutions on Council on Medical Service and Public Relations: These resolutions have been referred also to the Reference Committee on Executive Session, which has reported its recommendation that the matter be referred to the Board of Trustees for action. Your reference committee concurs in that report.

2. Resolutions on Survey of Public Opinion: On these resolutions your reference committee expresses its approval of the value of such researches as requested by the California Medical Association. It recognizes too the value obtained by that association in a survey made by it of the state of California within the past year. There has been recently made a survey of the entire United States by the Opinion Research Corporation at the request of the National Physicians' Committee. This survey with all its findings and conclusions is at the service of the Council on Medical Service and Public Relations. If any additional surveys are deemed needed by that Council it may take steps to secure them. Your committee recommends that these resolutions be disapproved.

3. Resolution on Creation of Department of Public Health: The resolution that the House of Delegates of the American Medical Association request the Congress of the United States to create a Department of Public Health the head of which department shall be a cabinet officer, and to assign to such department all health activities of the federal government is similar to another resolution which has been approved in preceding years and is again offered for approval to the House.

4. Resolution on Political and Economic Interests of Physicians: The Resolution on Political and Economic Interests of Physicians and a similar resolution from the Silver Bow County (Montana) are covered in the report of the Council on Medical Service and Public Relations.

5. Resolution to Transfer the Emergency Maternal and Infant Care Program to Department of Public Health: Your reference committee recommends approval of this resolution.

6. Resolutions on Maternal and Infant Care to Wives and Infants of Enlisted Men: The resolution, introduced on the part of the Missouri State Medical Association, in reference to medical service to the wives and children of enlisted men in the four lower grades for the period of the war and referring particularly to the method of payment of services, is covered in the Report on the Council on Medical Service and Public Relations.

7. Resolution on Inauguration and Expansion of Voluntary Group Medical Service Plans: The resolution introduced by Dr. Luce of Michigan urges the American Medical Association to encourage the inauguration and expansion of voluntary group medical service plans. This resolution is covered in our report on the Council on Medical Service and Public Relations.

8. Resolution on United Public Health League: Your reference committee feels that, while the United Public Health League may represent the group included in its membership, it cannot adequately represent the remaining 115,000 members of the American Medical Association located in the other forty-two states. Your reference committee recommends that this resolution be not approved.

9. Report of Bureau of Medical Economics: During 1943 the Bureau of Medical Economics continued to stress the soundness of those principles adopted in 1934 and urged the medical profession to continue to be alert to deal with medical service plans. It has recognized the needs and value of prepayment plans in general and their necessary complexity. It

has studied compulsory sickness insurance of many countries. It has shown the necessity of standards of medical service. It has referred to the present operation of the prepayment plans in fourteen states of the Union. "The war emergency has brought definite governmental control of education and medical practice and has reduced to an almost dangerous degree the number of physicians serving the civilian population." Your reference committee recognizes the difficulties under which the bureau has worked with decrease of personnel and increased difficulties of obtaining exact information at this time. It recommends approval of this bureau's report.

10. Report of Bureau of Public Relations: Your reference committee notes with interest and approval the many activities that the Bureau of Public Relations and the valuable and successful efforts it has made to furnish accurate information to newspapers, periodicals and news agencies and other mediums of public information. "It has collaborated in the public relations of many national organizations and has aided the war effort by disseminating material from governmental agencies to both the medical profession and the public." It has called special attention to the survey made by the Opinion Research Corporation at the request of the National Physicians' Committee and stressed many valuable deductions from that survey. Your reference committee recommends approval of this report.

11. Report of Bureau of Legal Medicine and Legislation: (a) Licensure: Your reference committee approves the suggestions made in regard to medical licensure with the additional statement that regulations for licensure be left to the individual licensing boards. (b) Demerol: Your reference committee recommends that this drug be placed under the same regulations as narcotics. (c) Obstetrics: While your reference committee approves the general program of care for wives and infants of servicemen, it disapproves the methods of payment. It is convinced that the full control and regulation of this program should be placed completely in the public health department of each state.

Your reference committee commends the action of the Bureau of Legal Medicine and Legislation on its work in keeping physicians informed of laws enacted and legislation pending and in particular on its studies of the activities of the sponsors of the Wagner-Murray-Dingell bill. It recommends the approval of the report.

12. Report of Council on Medical Service and Public Relations: Your reference committee refers to the report of the Council on Medical Service and Public Relations. This report for the past year shows a tremendous amount of work and much accomplishment. The Council has collaborated with the Bureau of Medical Economics, the Bureau of Legal Medicine and Legislation and the Bureau of Public Relations. It has published its studies of pending legislation, especially on the Wagner-Murray-Dingell bill. It has sent semimonthly bulletins of its activities to all component societies and constituent associations, to all state association secretaries and other officers, to members of the House of Delegates and to others to a number exceeding 2,000 names.

"Considerable study has been given to the subject of voluntary insurance diagnostic clinics and medical service bureaus." "It has established an office in Washington, D. C., for the collection of information and data concerning medical care and its distribution, its availability, its costs and its control in various parts of the United States. The information thus collected to be made available to the medical profession and to other appropriate agencies interested in the extension of medical service and the provision of medical care and related subjects."

Your reference committee approves the recommendation that the Board of Trustees prepare a plan whereby students of approved medical schools may become student members of the American Medical Association.

Your reference committee asks the House of Delegates to instruct the Council on Medical Education and Hospitals to take necessary steps to have each approved medical school give an adequate course in medical sociology, medical economics and medical ethics.

The unionization of employees in hospitals might jeopardize the health, safety and lives of patients. Your reference com-

mittee urges strongly the opposition of the House of Delegates to such activities.

Your reference committee recommends approval of the bill introduced by Congressman A. L. Miller of Nebraska which would transfer all government agencies dealing with health to the United States Public Health Service. This recommendation is in harmony with the recommendation previously made that the administration and control of emergency maternity infant care programs be placed in the public health departments of the individual states.

Your reference committee recommends that the House of Delegates do not authorize the reorganization or the amalgamation of the Bureau of Medical Economics with the Council on Medical Service and Public Relations.

Your reference committee feels that the recommendation of the Council be approved and that it be authorized to employ a director of medical prepayment insurance with necessary assistants when and where they may become essential.

Your reference committee reiterates approval of the platform of the American Medical Association adopted by the House six years ago and embodied in the supplementary report of this Council. There is no change in the platform itself. The added explanatory changes offered by the Council elucidate and merit approval. Your reference committee recommends approval of this report.

13. Resolutions on Tuberculosis Control: Your reference committee is in full sympathy with the purposes of the act and the objection of the proposers. It fully recognizes the gravity of the disease and the danger that follows its lack of control. In this proposed act, vast power is given to the central government through the Surgeon General of the United States Public Health Service subordinate in all financial matters to the Federal Security Administration. No money may be appropriated or expended for the purposes of this act without the approval of the Federal Security Administration. The initial appropriation asked for the first year is \$10,000,000, and for each year thereafter "a sum sufficient to carry out the purposes of this act." Furthermore, other ways may be provided for attaining the objective, as for example direct aid to needy communities in the Lanham act. Your reference committee recommends disapproval of the resolutions.

Section I in the report of the reference committee, concurring in the report of the Reference Committee on Executive Session adopted by the House, needed no action.

The second section of the report of the reference committee, disapproving of Resolutions on Survey of Public Opinion, was adopted on motion of Dr. McGoldrick, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried.

Dr. McGoldrick moved that section 3 in the report of the reference committee, approving the Resolution on Creation of a Department of Public Health, be adopted, and the motion was seconded by Dr. George W. Kosmak, New York, and carried.

The fourth section of the report of the reference committee, referring to Resolution on Political and Economic Interests of Physicians, is covered in the report of the reference committee on report of the Council on Medical Service and Public Relations.

On motion of Dr. McGoldrick, seconded by Dr. J. F. Hassig, Kansas, and carried, the fifth section of the report of the reference committee, approving the Resolution to Transfer the Emergency Maternal and Infant Care Program to Department of Public Health, was adopted.

The Resolutions on Maternal and Infant Care to Wives and Infants of Enlisted Men, referred to in the sixth section of the report of the reference committee and the Resolution on Inauguration and Expansion of Voluntary Group Medical Service Plans referred to in the seventh section of the report are covered in the report of the reference committee on the report of the Council on Medical Service and Public Relations.

Dr. McGoldrick moved that section 8 of the report of the reference committee, disapproving the Resolution on United Public Health League, be adopted, and the motion was seconded by Dr. Walter E. Vest, West Virginia, and carried, after discussion by Dr. Dwight H. Murray, California.

The report of the reference committee recommending approval of the report of the Bureau of Medical Economics, as contained in section 9, was approved on motion of Dr. McGoldrick, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried.

On motion of Dr. McGoldrick, seconded by Dr. Louis A. Van Kleeck, New York, and carried, section 10 of the report of the reference committee, recommending approval of the report of the Bureau of Public Relations, was adopted.

Dr. McGoldrick moved, and the motion was seconded by Dr. Francis F. Borzell, Pennsylvania, and carried, that section 11 of the report of the reference committee, approving the report of the Bureau of Legal Medicine and Legislation, be adopted.

It was moved by Dr. McGoldrick, and duly seconded, that the twelfth section of the report of the reference committee, dealing with the report of the Council on Medical Service and Public Relations, be adopted. Dr. Louis H. Bauer, New York, remarked that the statement was not quite accurate, as eight supporting items are from the old platform, but the item adopted as a platform is entirely new, namely that the first item is the platform. Dr. McGoldrick stated that with this correction your reference committee recommends the adoption of that platform as embodied in the supplementary report of the Council on Medical Service and Public Relations. The motion to adopt the report as amended was then seconded by Dr. Louis H. Bauer, New York, and carried.

The report of the reference committee contained in section 13, disapproving of Resolutions on Tuberculosis Control, was adopted on motion of Dr. McGoldrick, seconded by Dr. Robert H. Hayes, Illinois, and carried after discussion by Dr. McGoldrick; Dr. Stanley H. Osborn, Section on Preventive and Industrial Medicine and Public Health; Dr. Thomas S. Cullen, Maryland, and Dr. Francis F. Borzell, Pennsylvania.

On motion of Dr. McGoldrick, seconded by Dr. J. F. Hassig, Kansas, and carried, the report of the reference committee was adopted as a whole, after discussion by Drs. Lee O. Frecht, Illinois, and Louis H. Bauer, New York.

Presentation and Address of Lieutenant General Robert Kho-sheng Lim

Major General George F. Lull, United States Army, presented Lieutenant General Robert Kho-sheng Lim, Director of Planning of the Medical Department of the Chinese Army, who addressed the House as follows:

Mr. Speaker, Colleagues of the American Medical Association: I feel it is a very great honor to have been asked to come to attend your meeting here today. I feel it an honor because over in China, where we have so few doctors trained in modern medicine, the large majority have been trained in American medical schools. In China today the difficulty that we are facing is largely a lack of trained personnel. We have 2,000 doctors to look after 8,000,000 men. You will no doubt wonder how any medical service can be given, but fortunately we can to some extent apply the principles of scientific medicine or, better, scientific health, and by putting forward many of the principles and methods that you have taken in this country for your own purposes during the war (I refer to the policy of putting prevention of disease foremost) I believe that we have been able to sustain the health of our armies to a degree that is really surprising. I won't take up your time. I want again to thank you for your kindness and the privilege of being able to attend the meeting and to speak here.

On behalf of the House the Speaker expressed to General Lim the appreciation of the House for his presence.

Resolution Requesting Dr. Roger I. Lee to Resign as Trustee Immediately, Thereby Removing Constitutional Bars to His Eligibility as Candidate for President-Elect

Dr. Floyd S. Winslow, New York, presented the following resolution, which the House, sitting as a Committee of the Whole, on motion of Dr. Winslow, seconded by Dr. George W. Kosmak, New York, and carried, considered:

*WHEREAS, This is a critical period in American medicine; and
WHEREAS, Able, constructive leadership has never been more necessary, than at the present time; and*

WHEREAS, The present chairman of the Board of Trustees, with ten years' experience on the Board, is better qualified than any one else to assume the leadership of the American Medical Association; and

WHEREAS, The provisions of the Constitution and By-Laws of the Association render any general officer of the Association ineligible for election as President-Elect; and

WHEREAS, The term of office of the present Chairman of the Board of Trustees expires at the close of the present session, and having served two terms he is ineligible for reelection as Trustee and, therefore, his ineligibility is a technicality of a few hours, therefore be it

Resolved, By the House of Delegates of the American Medical Association that it calls on Dr. Roger I. Lee, Chairman of the Board of Trustees of the American Medical Association, to resign his office as Trustee immediately, thereby removing all constitutional bars to his eligibility as a candidate for the office of President-Elect.

With Dr. Winslow presiding over the House as a Committee of the Whole, the resolution was adopted by the Committee of the Whole, on motion of Dr. James Q. Graves, Louisiana, seconded by Dr. George W. Kosmak, New York, and carried.

On motion of Dr. Louis H. Bauer, New York, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, the Committee of the Whole rose to report to the House.

The Speaker resumed the Chair and Dr. Winslow reported that the Committee of the Whole recommended adoption of the resolution referring to Dr. Roger I. Lee. On motion of Dr. George W. Kosmak, New York, seconded by Dr. Thomas A. Pitts, South Carolina, and carried, the recommendation of the Committee of the Whole was adopted.

Tuesday Afternoon—Continued

On motion of Dr. R. W. Fouts, Vice Chairman, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried, the House went into regular session at 4:20 p. m., with the Speaker, Dr. H. H. Shoulders, presiding.

Resolution on Neuropsychiatric Casualties

Dr. H. A. Luce, Michigan, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, President-Elect Herman L. Kiet-chner gave special attention in his address to the neuropsychiatric casualties of our country which have developed as a result of the war, and

WHEREAS, In his wisdom and judgment he indicated that the House of Delegates of the American Medical Association should take some action toward the treatment and consideration of neuropsychiatric disabilities; be it

Resolved, That the House of Delegates request the President of the American Medical Association for the year 1944-1945 to appoint a committee and take such steps as in his judgment may seem to be indicated in the consideration of the above referred to problems.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. E. S. Hamilton, Chairman, presented the following report:

1. Conference with Board of Trustees of American Optometric Association: Your reference committee has reviewed the report of the conference with the Board of Trustees of the American Optometric Association, and carefully read their statement presented in the Handbook. The attention of the House of Delegates is especially directed to article 4 of their statement, as follows: "4. Mutual professional respect and support; the broadening of the bases of contact and scope to the end that all practitioners who are concerned with matters of eyes and eyesight and the problems of vision from any corrective or alleviative standpoint may be included in and of necessity become integral parts of such a cooperative association of mutually interested and allied professions and health services."

In view of the action of the House of Delegates in 1935, when consultation between oculists and optometrists was disapproved, said action being affirmed in 1936 and 1940, your reference committee recommends that the request of the American Optometric Association for conference with the representatives of the American Medical Association be denied.

2. Legislative Recognition of Cultists: Your reference committee has thoroughly reviewed the report as printed in the Handbook. It is heartily in accord with the statement of the Council on Medical Education and Hospitals that "only graduates of approved schools of medicine should be licensed in the practice of medicine."

Your reference committee approves the entire report and recommends its adoption by the House of Delegates.

Respectfully submitted,

EDWIN S. HAMILTON, Chairman.
OLIN H. WEAVER.
J. B. LUKINS.
ROBERT E. SCHLUETER.
FRANCIS J. SAVAGE.

It was moved by Dr. Hamilton, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried after discussion by Dr. Walter B. Martin, Virginia, and Dr. Bedell, that the first section of the report of the reference committee, dealing with Conference with the Board of Trustees of American Optometric Association, be adopted.

Dr. Hamilton moved the adoption of section 2 of the report of the reference committee, approving the report of the Board of Trustees on Legislative Recognition of Cultists as printed in the Handbook. The motion was seconded by Dr. Mather Pfeiffer, Illinois, and carried.

On motion of Dr. Hamilton, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, the report of the reference committee was adopted as a whole.

Report of Reference Committee on Miscellaneous Business

Dr. H. A. Luce, Chairman, presented the following report, which on motions of Dr. Luce, duly seconded and carried, was adopted section by section and as a whole:

1. Rereferred Resolution on Dr. Horace Wells of Hartford, Conn.: This resolution has been considered by your reference committee, which is aware of the controversial nature of priority claims regarding the initial application of anesthetic agents.

Your reference committee wishes to give honor to whom honor is due and to deny to no one seniority rights and recommends the substitution of the following resolution for the one introduced by Dr. Miller.

"WHEREAS, 1944 marks the centenary of the application of a practical method of anesthesia by nitrous oxide by Dr. Horace Wells of Hartford, Conn.; therefore be it

Resolved, That the House of Delegates of the American Medical Association commends and endorses the celebration during 1944 of the centenary of this application of nitrous oxide anesthesia by Dr. Horace Wells of Hartford, Conn."

2. Resolution on Simplification and Standardization of Insurance Forms: Your committee approves the resolution as introduced with the following changes: substitution of the word "requested" for the word "instructed" in the last paragraph and the changing of the latter part of the paragraph beginning "with a view" to read "with a view toward developing simplification and standardization of forms" so that the resolution as approved by your reference committee reads: "*Resolved*, That the Board of Trustees of the American Medical Association shall be requested to arrange for a series of conferences between representatives of the American Medical Association and representatives of private insurance carriers with a view toward developing simplification and standardization of forms."

Respectfully submitted,

HENRY A. LUCE, Chairman.
CHARLES G. STRICKLAND.
LUCIUS F. DONOHUE.
ROBERT A. PEERS.
ROBERT H. HAYES.

Resignation of Dr. Roger I. Lee as Trustee

The Speaker called on Dr. Roger I. Lee, Chairman Board of Trustees, who addressed the House as follows:

Mr. Speaker, Members of the House: As a Delegate for a number of years and as a Trustee for ten years, I have always with the greatest humility bowed to the action of the House of Delegates. I hereby bow once more to the action of the House of Delegates and I resign as Trustee.

On motion of Dr. George W. Kosmak, New York, seconded by Dr. Floyd S. Winslow, New York, and carried, the resignation of Dr. Roger I. Lee as Trustee was accepted.

On motion of Dr. T. K. Gruber, Michigan, duly seconded and carried, the House recessed at 4:40 p. m. to convene at 12 noon on Thursday, June 15.

Third Meeting—Thursday Afternoon, June 15

The House of Delegates was called to order at 12:10 p. m. by the Speaker, Dr. H. H. Shoulders.

The Speaker called on a veteran member of the House, Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, who delivered a prayer as follows:

Oh, Lord God of Hosts, Who has safely brought us to the beginning of this day, we beseech Thee to look down on these, Thy servants, especially those in the armed forces who are fighting for the restoration of peace. *Theirs is a mighty battle. Give them courage, guide the sick and wounded to a happy issue out of all their afflictions that they may live on to fight for the Cross of Jesus. We pray, oh Lord, that the captives and the suffering ones may be restored to normal life and happiness. We pray for all sorts and conditions of men who need strength and greater faith in Thee.*

May this great country of ours maintain freedom and liberty and righteousness of life. May medical science and art forever have the background of humanity. Bless, oh Lord, our loved ones in special danger and return them to their homes in Thy love and service.

Again we commend to Thy care those who are in sorrow, sickness or adversity. We pray for the peace that passeth all understanding. May faith abide with us and right be our guiding star.

We open this meeting with the belief that God will lead us on to a better life for all humanity. It is promised that when two or three are gathered together in Thy name Thou wilt grant their requests. God hear us and have mercy on us. Christ hear us and have mercy on us in this raging conflict. Preserve us in body and soul, through Jesus Christ our Lord, to whom with Thee and the Holy Ghost be all honor and glory. Amen.

**Presentation and Address of Major General
David N. W. Grant**

On request of the Speaker, Dr. Frank H. Lahey, Past President, presented to the House Major Gen. David N. W. Grant, Air Surgeon, Army Air Forces, who addressed the House as follows:

Dr. Paullin, Dr. Kretschmer, Mr. Chairman and Members of the House of Delegates: It was my pleasure and my privilege last year on a similar occasion and my duty to report to you what we in the Army Air Forces are trying to do with our medical officers. I reported to you last year that we were endeavoring by every means possible to use the proper man in the proper place and to economize on doctors within the limits of the necessity. At that time I reported that some 97 per cent of the specialists were promptly assigned to the Air Forces, and I am happy to report that this figure remains approximately the same and that the same interest is being carried on within the medical services of the Army Air Forces to continue the proper assignment.

Many problems have appeared in the last year. Now that we are dealing with war casualties there is one which is of very vital concern. Personally I am disturbed, very much disturbed, over what to me is a great deal of loose talk over the so-called psychoneurotic. As you probably know, the Army Air Forces have been pioneering in convalescent and rehabilitation work for the past eighteen months and we have got eighteen months' experience behind us. Our records show that we are returning to duty approximately 85 per cent of our people, be they war casualties or the so-called psychoneurotic. We are vitally concerned with this so-called flying fatigue, call it what you may—some speak of it as a psychoneurosis in relation to flying.

Of the combat people returned from the theaters with pronounced operational fatigue, 68 per cent have been put in condition to return to combat duty (I don't think you would call that psychoneurotic) and 85 per cent of all of them are returned to flying duty.

I don't think we have any right to label these boys psychoneurotic when they are normal individuals, the same as we are, who have been put under tremendous stress, and they need rest and, you might say, medical guidance. We in the Air Forces

are greatly disturbed over the trend of loose publicity with relation to the term "psychoneurosis."

This brings us to the point of postwar planning. You have no doubt seen in the papers General Arnold's announced policy in reference to the men in the Air Forces, that he is endeavoring to return them to civil life in as good condition as when they came, or in better condition, as far as possible. That covers the people in the Army Air Forces; it covers all branches of people in the Army Air Forces.

It naturally follows that you will want the question answered: What about these doctors in the Army Air Forces? What is your postwar plan? I can tell you that for two years the office of the Air Surgeon has been working on and revising postwar plans in reference to the doctors who are serving with the Army Air Forces, that these plans call for training or postgraduate study for any medical officer who so desires such training on his separation from the service. I stated here last year, and we still have that policy, that our one aim is to return these doctors to civil life at least as good doctors and, we hope, better doctors.

I am not prepared at this time to tell you how this will be done, whether in civilian institutions or Army institutions, because from the civilian institution standpoint legislation will have to be passed. I can only say that it is written into the broad plan of the Army Air Forces today, which covers the medical people serving with the Army Air Forces.

For your information, to show you what we are trying to accomplish in this, I might mention to you that during the last year we have given a few over 500 young men six months' recognized resident training, and 30 per cent of that number we have continued on to a full year of recognized resident training.

I need only add that it is the policy of the Army Air Forces that this training continue and that we are continuing it at this time, and certainly as long as I am in office it will be continued.

**Presentation and Address of Major General
Norman T. Kirk**

On request of the Speaker, Dr. Fred Rankin, Past President, presented to the House Major General Norman T. Kirk, Surgeon General of the United States Army, who addressed the House as follows:

Thank you very much. It is a pleasure and an honor again to address the Delegates of the American Medical Association. I was told three minutes ago that I was going to do this.

Maybe we had better go into the organization of the Medical Department of our Army. Before the Army was reorganized, just prior to the war, there was the Surgeon General of the Army on the staff of the Chief of Staff. Then the Army was reorganized into the Ground Forces, the Air Forces and the Service Forces. The Surgeon General of the Army became the Surgeon General of the Army Service Forces, with General Grant appointed as Air Surgeon of the Air Forces, and another medical officer, who was initially General Blesse, who has served two years in the North African campaign, now serving with the Ground Forces. So the Medical Department has been split more or less three ways at home.

Overseas, the medical installations in each theater operate under a surgeon in that theater who is on the staff of the commanding general of that theater. The medical department procured early on their own, later through Assignment and Procurement, medical officers and nurses for the armed forces. The air forces in this general procurement program procured medical officers for those forces. All medical supplies that have been purchased—and it has been a big job—for the armed forces have been purchased out of the Office of the Surgeon General and distributed under the direction of the officer or civilian in charge of medical supplies, and we have been classified in many departments as the supply branch. That is only a small part of our job, yet General Somervell recently, on a trip around the world, came back and said that the best supply job done in all the theaters was done by the medical department. That is a lot from General Somervell. He is a fine boss, he is a great soldier; he calls a spade a spade. If one isn't pro-

ducing, one is in trouble. We were in trouble early in the supply game. Manufacturers didn't produce things that the medical department needed. They didn't make instruments; they all came from Germany. Many other things were required in this great expansion of ours that were not available, were not manufactured, so I can tell you today that the medical department is leading not only overseas but at home in the supply game.

Hospitalization: General Grant and I had an opportunity to visit England in March. General Hawley has been surgeon of that theater; he has been over there some two years, has planned and built it and has done a splendid job. There have been wonderful hospitals constructed, some turned over to us by the British, others built of brick, of hollow tile or huts that are well sealed, and the hospitals are there, with many beds, thousands of beds—I can't tell you how many—to be ready for D-Day, which has already happened. There are abundant medical supplies over there, and the personnel staffing those station and general hospitals are doing a grand job. I wish you could see them. You would be proud of them, particularly these affiliated units that have been working for the past two years.

Hawley has cheated a bit on his policy of evacuation back home. He has kept those patients over there so that those people would have something to do in those grand units. We have some femurs over there being returned to duty in the theater, and we all know it takes six to eight months to get a compound femur back to duty. He set up over in that theater and took leadership, and it is better than we have.

I can't agree with General Grant that psychoneurosis isn't a problem in the Army and shouldn't be talked about. I can't state statistics, I am not permitted, but they have been stated as to the number of men that have been discharged from the Navy, from the Army, from the Air Forces, because of psychoneurosis. Over there we saw something that was being done to train medical officers to take care of battle fatigue, whether it was the normal or the psychoneurotic that got that far, and it is a wonderful job, better than we are doing at home. We saw men in there being given barbiturates, put to bed, fed, who were 15 or 20 pounds underweight and were gaining a pound a day under that treatment, and they were reconditioned. In that theater there has been set up a better reconditioning unit than anywhere at home or abroad. A grand job is being done over there.

We visited the Eighth Air Force that had been bombing Germany. General Grant and I had an opportunity to be there when a flight returned to one of those bases on the third day over Berlin and to see what casualties came back. We wanted to see how it happened at the front. It so happened that every plane came back. The only casualty was a man with a piece of flak that had gone through the back of his hand and had taken a bit of skin off his hand.

In all those airfields there were set up excellent dispensaries to give first aid to the casualties that flew back in those bombers. Then they were evacuated to the station hospitals set up by the ASF under Hawley, where there were wards set up to treat shock day or night when these casualties came back. We saw some of those casualties that happened the night before. We saw one man who had lost a kidney. The laminae had been taken off of three lumbar vertebrae. The General over there who heads up the surgery of that air force has done a grand job in building armor to protect these men from low velocity missiles; it buttons up the side, but this missile went through. It required the removal of this man's kidney. The spinal cord was temporarily out. The fellow was doing excellently. We saw many other battle casualties that were excellently handled there. They stayed in those station hospitals that were set up in that Eighth Air Force and then were transferred to the general hospital. They were doing a grand job.

All hospitalization overseas is done by ASF. They are brought home in two ways. Over there the air service has done a grand job in evacuating casualties from the theater; they have evacuated more than 180,000 casualties, and I don't believe that the campaign could have gone on if it hadn't

been for evacuation of wounded from the front back to our bases. It is a hundred mile haul by ambulance and then they are put in airplanes and brought up. There is a three hour haul then by air to our bases. There wouldn't have been railroads or hospital trains to get those patients back. That is the story in that theater, and that is the story in the Southwest Pacific. A grand job has been done in evacuation by air of our battle casualties.

They come home from these general hospitals that I have told you about by hospital ship or troop ship and by air. These grand four motored airplanes that are now available, I am informed by General Grant's office, are more and more bringing back battle casualties and sick from overseas. When they come back, all battle casualties are received in our general hospitals, ASF general hospitals, for definitive care for their war wounds. A grand job is being done in those hospitals here at home. I have visited a lot of them, and so have many of you.

There are sixty of those hospitals with more than a hundred thousand beds that have been set up and are ready to take care of what comes from this push across the Channel. Plans have been made to take care of convalescents, to augment those beds if we need more, and for the reconditioning that is also going on in the Army service.

I think you might be interested in the setup of plans for D-Day when this push came across and we really started to fight this war. We have just started to fight this war. We are ready to pour men in there to win this war, and the medical department has a plan that is backing up those gallant troops that are going to make this drive to win the war.

When those units went over they attached medical companies. Two medical aid men went forward with each company that went into attack to supply first aid to the first men wounded. The litter bearers came forward to carry those men back to the aid stations that were set up on the beachhead when the battalion first landed. Then they were put on certain selected LST boats that brought over tanks and infantry and whatnot, manned by Navy personnel, Navy medical officers and Corps men who gave first aid in these LSTs, which before they left the home shore were supplied with the necessary medical equipment for dressing stations and operating rooms aboard the hospital ships that carried these battle casualties and battle sick back to the home shore, where there were ambulances and hospital trains available to take them to hospitals.

As those troops advanced, the medical battalion came in with its collecting stations and clearing stations, and those clearing stations were supplemented by surgical teams to take care of the nontransportable patients. As they advanced and a division came ashore, platoons of field hospitals and evacuation hospitals landed on the beach head to give primary surgery on the beach head rather than transport them back by boat to England for primary surgery. And so the plan is in operation as it has been studied and developed to take care of the battle casualties that ensue from this invasion.

There are general hospitals there in England that will go forward and set up in France. These units have been there operating for a year, two years, and then have been pulled out, ready to go up with their equipment to set up general hospitals in France, while newer units come over and take over the job they were doing in England. That is the plan of medical service in that theater.

I want to thank the American Medical Association for the help that it has given the Surgeon General's Office in selecting specialists and making available this information about doctors as to what they can do and not what they think they can do. With the help in our office of such men as General Rankin and Hugh Morgan and others from you who have come in to assist us, those men have been placed on the jobs where they are doing excellent work. With 40,000 men in the Medical Department and with excellent care that we are seeing that the sick and wounded are receiving, it isn't by chance that this all happened. It was planned, and the right man was put in the right job to do that job.

I thank you for allowing me to talk to you. I am afraid I have talked too long.

Report of Reference Committee on Credentials

Dr. Deering G. Smith, Chairman, reported that there are 170 Delegates registered out of a possible total of 175, which your reference committee believes is a wonderful record in these troublous times.

Roll Call

The Secretary called the roll and announced that more than a quorum had responded.

Presentation of Minutes

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Thomas A. McGoldrick, New York, and carried, the House dispensed with the reading of the minutes.

Report of Reference Committee on Medical Education

Dr. Charles H. Phifer, Acting Chairman, presented the following report, which on motions of Dr. Phifer, duly seconded and carried, was adopted section by section and as a whole:

1. Resolution Requesting Board of Trustees to Prepare a Concise Statement of Achievements of the Medical Profession for Submission to Boards of Education Your reference committee is in accord with the recommendation of the Board of Trustees that the Resolution Requesting the Board of Trustees to Prepare a Concise Statement of Achievements of the Medical Profession for Submission to Boards of Education be not approved, since the intent of the resolution has been accomplished through publication of material on the achievements of medicine in practically every issue of *HYGEIA* and also through the several histories of medicine which have been published recently.

2. Resolution on Lifting of Sex Discrimination from Young Women Desiring to Study Medicine: Your reference committee recommends that this resolution be not approved. It is the belief of the reference committee that there is no large reservoir of qualified premedical women from which schools could select substantially increased numbers of women medical students. With regard to alleviating or aiding the financial status of women and other civilian medical students, the deans of medical schools are acquainted with various loan and scholarship funds. This information should be made available to civilian students. Your reference committee recommends that this resolution be referred to the Council on Medical Education and Hospitals with instructions that it give every consideration to the problem.

Respectfully submitted,

WILBURT C. DAVISON, Chairman.
THOMAS S. CULLEN.
CHARLES H. PHIFER.
FRANCIS F. BORZELL.

Report of Reference Committee on Legislation and Public Relations

Dr. Thomas A. McGoldrick, Chairman, presented the following report, which was adopted section by section and as a whole, on motions of Dr. McGoldrick, duly seconded and carried:

1. Resolution on Neuropsychiatric Casualties: Your reference committee recommends that the resolution introduced to carry out the suggestions of President-Elect Herman L. Kretschmer that the President of the American Medical Association for the year 1944-1945 appoint a committee to take such steps as may seem to be indicated in the consideration of the subject of neuropsychiatric casualties due to war be adopted.

2. Resolution on Consolidation of Federal Health Activities in a Single Federal Department: Your reference committee feels that the work described in H. R. 4371 could best be done through the state and local authorities with monies allotted to them by the Secretary of Labor rather than through the United States Public Health Service as suggested in this resolution. Your reference committee recommends disapproval of the resolution.

3. Resolutions on American Medical Association Legislative and Public Relations Activities: The matter introduced by Dr. Dillinger of Indiana, on behalf of the Indiana State Medical Association, concerning the organization of an office for the Council on Medical Service and Public Relations in Washington, D. C., has been covered in our report on this Council and needs no further action.

Respectfully submitted,

THOMAS A. MCGOLDRICK, Chairman.
FLOYD NOLAND.
H. G. HAMER.
WILLIAM R. MOLONY SR.
ROBERT L. ANDERSON.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. E. S. Hamilton, Chairman, presented the following report, which on motion of Dr. Hamilton, seconded by Dr. William A. Mulherin, Georgia, and carried, was adopted:

Resolutions on Speakers' Bureau: Your reference committee is wholly in accord with these resolutions and recommends that they be approved.

Respectfully submitted,

EDWIN S. HAMILTON, Chairman
OLIN H. WEAVER.
J. B. LUKINS.
ROBERT E. SCHLUETER.
FRANCIS J. SAVAGE.

Resolutions on Compensation for Full Time Health Officers from the Section on Preventive and Industrial Medicine and Public Health

Dr. Arthur J. Bedell, Section on Ophthalmology, in behalf of Dr. Stanley H. Osborn, Section on Preventive and Industrial Medicine and Public Health, who was called home on yesterday, presented the following resolutions from the Section on Preventive and Industrial Medicine and Public Health, which, on motions of Dr. G. Henry Mundt, Illinois, seconded by Dr. George W. Kosmak, New York, and carried, were referred to the Board of Trustees:

WHEREAS, The practice and administration of public health has become a specialty within the practice of medicine for which more and more physicians are specially trained and in which they pursue lifetime careers; and

WHEREAS, The safeguarding and the improvement of the health of the people have always been a primary concern of the medical profession, and our responsibility in this field is so important that it has attracted and should continue to attract some of the ablest members of our profession; and

WHEREAS, Health officers have often devoted their lives to this field at the cost of considerable personal sacrifice, such as inadequate compensation, political interference, insecure tenure of office, lack of facilities for research or opportunities for personal advancement; and

WHEREAS, The American Medical Association has pointed out the fact that many sections of the country are without the benefits of full time trained health officers and that there is great need for more well trained physicians in this field; now therefore be it

Resolved, That it is the considered opinion of this Association that the full time health officers and other full time medical specialties in the public health field who have been specially trained for their highly important work should be compensated for their services in a manner comparable with the net professional income of the good surgeons or internists of the community, and further

Resolved, That adequate compensation and reasonable security in tenure of office will be necessary before physicians with proper qualifications to assume the heavy responsibility of protecting and improving the health of the public will be available in sufficient number to meet the nation's existing needs

These resolutions were passed by the Section on Preventive and Industrial Medicine and Public Health on Wednesday morning, June 14, at the Stevens Hotel, Chicago.

Resolution on Formation of Anesthesia Study Commissions

Dr. Henry S. Ruth, Section on Anesthesiology, presented the following resolution adopted by that section, which was adopted on motion of Dr. Ruth, seconded by Dr. F. Leslie Sullivan, New York, and carried:

WHEREAS, There has been introduced a variety of anesthetic drugs and methods during recent years; and

WHEREAS, A more rapid and accurate method of evaluating these new anesthetic practices is desirable; and

WHEREAS, There is accumulating evidence that misinformation exists concerning safe administration of anesthetic drugs; and

WHEREAS, It has been demonstrated that anesthesia study commissions are of educational value to the medical profession; now therefore be it

Resolved, That the American Medical Association should encourage the formation of anesthesia study commissions within the state, county and other similar medical societies.

ELECTION OF OFFICERS

The Speaker declared the next order of business to be the election of officers.

Election of President-Elect

Dr. Walter G. Phippen, Massachusetts, nominated Dr. Roger I. Lee, Boston, for President-Elect, and the nomination was seconded by Drs. A. A. Walker; Lloyd Noland, Alabama; Thomas A. McGoldrick, New York; John H. O'Shea, Washington; Edward R. Cunniffe, New York, and William A. Mulherin, Georgia; the Michigan delegation; Drs. Edwin S. Hamilton, Illinois; H. B. Everett, Tennessee; Thomas A. Pitts, South Carolina; Robert A. Peers, California; James R. Miller, Connecticut; Deering G. Smith, New Hampshire; Harry V. Paryzek, Ohio; J. Morrison Hutcheson, Virginia; A. W. Adson, Minnesota; Felix J. Underwood, Mississippi; E. H. Cary, Texas; James R. McVay, Missouri; Robert L. Anderson, Pennsylvania; Edward J. McCormick, Ohio; James P. Wall, Mississippi, and Maurice Hardgrove, Isthmian Canal Zone, and others.

Dr. A. A. Walker, Alabama, moved that the nominations be closed, and the motion was seconded by Dr. George W. Kosmak, New York, and Dr. William A. Weston, Section on Pediatrics, and carried.

Dr. A. A. Walker, Alabama, moved that the Speaker of the House or the Secretary be empowered to cast the vote of this House for the next President-Elect, and the motion was seconded by Dr. H. B. Everett, Tennessee, and carried unanimously.

The Secretary cast the ballot of the House for Dr. Roger I. Lee, Boston, for President-Elect of the American Medical Association for the ensuing year, and the Speaker declared Dr. Lee so elected.

Election of a Vice President

Dr. E. H. Cary, Texas, nominated for Vice President Dr. Stanley J. Seeger, Texarkana, Texas, who has done an excellent job as Chairman of the Council on Industrial Health, and the nomination was seconded by Dr. James C. Sargent, Wisconsin.

Dr. William Weston, Section on Pediatrics, moved that the nominations be closed, and the motion was seconded by Dr. William A. Mulherin, Georgia, and carried.

On motion of Dr. E. H. Cary, Texas, seconded by Dr. James C. Sargent, Wisconsin, and carried, the Secretary cast the ballot of the House for Dr. Stanley J. Seeger, Texarkana, Texas, to serve as Vice President of the American Medical Association for the ensuing year.

The Speaker declared Dr. Stanley J. Seeger duly elected Vice President of the American Medical Association for the ensuing year.

Address of President-Elect Roger I. Lee

Dr. William R. Brooksher, Arkansas, escorted Dr. Roger I. Lee, newly elected President-Elect of the American Medical Association, to the platform and Dr. Lee addressed the House as follows:

Mr. Speaker, Members of the House: I would be far less than human if I were not deeply touched by this tribute. To be President-Elect of the greatest profession in the world in the greatest country in the world is something that is just beyond words. I am particularly touched by the fact that this House of Delegates, with whom I have worked ten years as a Delegate and another ten years on the Board of Trustees, should be the agency which did this. It is one thing to be elected by those who don't know you; it is a particular tribute to be

elected by your friends who know you so well, and I pledge whatever is within me to the medical profession and to the American Medical Association.

Election of Secretary

Dr. Wells P. Eagleton, New Jersey, nominated Dr. Olin West, Chicago, to succeed himself as Secretary of the American Medical Association, and the nomination was seconded by Drs. George W. Kosmak, New York; Edwin S. Hamilton, Illinois; William A. Mulherin, Georgia; Andrew F. McBride, New Jersey; Edward R. Cunniffe, New York; William Weston, Section on Pediatrics; Lloyd Noland, Alabama; John Z. Brown, Utah; H. B. Everett, Tennessee; Robert A. Peers, California, and Walter G. Phippen, Massachusetts, and others.

Dr. A. A. Walker, Alabama, moved that the nominations be closed, and the motion was seconded by Dr. Burt Shurly, Section on Laryngology, Otology and Rhinology, and carried.

Dr. A. A. Walker also moved that the Speaker cast the ballot of the House for Dr. Olin West as Secretary, and the motion was seconded by Dr. Andrew F. McBride, New Jersey, and unanimously carried, and the Speaker cast the ballot of the House for Dr. Olin West and declared him elected to the office of Secretary of the American Medical Association for the ensuing year. Dr. West addressed the House briefly.

Election of Treasurer

Dr. R. L. Sensenich, Board of Trustees, stating that the Board of Trustees is directed by the Constitution to nominate some one for the treasurership, presented the name of Dr. Josiah J. Moore, Chicago, to succeed himself as Treasurer of the Association. The nomination was seconded by Dr. E. S. Hamilton, Illinois.

Dr. G. Henry Mundt, Illinois, moved that the nominations be closed. The motion was seconded by Dr. John Z. Brown, Utah, and carried.

Dr. G. Henry Mundt, Illinois, presented a substitute motion that the House confirm the nomination of the Board of Trustees for Treasurer. The motion was seconded by Dr. William A. Mulherin, Georgia, and carried, and the Speaker declared Dr. Moore elected to the office of Treasurer for the ensuing year.

Announcement of Bombing of Japan

The Secretary read the following message, which was received with applause:

The United Press has just received an announcement by the War Department that B-29 super fortresses of the United States Army Air Force 20th Bomber Command today bombed Japan. This is the first raid on Japan proper since the Doolittle raid in 1942.

Election of Speaker of House of Delegates

With Dr. R. W. Fouts, Vice Speaker, in the Chair, Dr. James Q. Graves, Louisiana, nominated Dr. H. H. Shoulders, Nashville, Tenn., to succeed himself as Speaker of the House. The nomination was seconded by Drs. William Weston, Section on Pediatrics; William A. Mulherin, Georgia; J. B. Lukins, Kentucky, and J. F. Hassig, Kansas, and others.

Dr. George W. Kosmak, New York, moved that the nominations be closed and the motion was seconded by Dr. H. B. Everett, Tennessee, and carried.

Dr. George W. Kosmak moved that the Secretary be directed to cast the ballot of the House for Dr. Shoulders, and the motion was seconded by Dr. Mather Pfeifferberger, Illinois, and carried.

The Secretary cast the ballot of the House for Dr. H. H. Shoulders, Nashville, Tenn., for Speaker of the House of Delegates of the American Medical Association for the ensuing year, and the Vice Speaker declared Dr. Shoulders so elected.

Dr. Shoulders resumed the Chair and addressed the House briefly.

Election of Vice Speaker of House of Delegates

The Speaker resumed the Chair and called for nominations for Vice Speaker of the House of Delegates.

Dr. Robert E. Schlueter, Missouri, nominated Dr. Roy W. Fouts of Omaha, Neb., to succeed himself and the nomination

was seconded by Drs. Mather Pfeiffenberger, Illinois, and James Q. Graves, Louisiana, and others.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. George W. Kosmak, New York, and carried, the nominations were closed.

It was moved by Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried, that the Secretary cast the ballot of the House for Dr. R. W. Fouts for Vice Speaker. The Secretary cast the ballot of the House for Dr. Roy W. Fouts, Omaha, to serve as Vice Speaker of the House of Delegates for the ensuing year and the Speaker declared Dr. Fouts duly elected.

Election of Trustees

ELECTION OF TRUSTEE TO SUCCEED DR. ROGER I. LEE

Dr. Edward R. Cuniffie, New York, nominated Dr. Louis H. Bauer, New York, for the office of Trustee of the American Medical Association to succeed Dr. Roger I. Lee, resigned. The nomination was seconded by Drs. George W. Kosmak and J. Stanley Kenney, New York; Holman Taylor, Texas; Harry V. Paryzek, Ohio; Walter G. Phippen, Massachusetts; Robert A. Peers, California; James R. Miller, Connecticut; Arthur R. McComas, Missouri; Lloyd Noland, Alabama, and Robert L. Anderson, Pennsylvania. On motion of Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, seconded by Dr. George W. Kosmak, New York, and carried, the nominations were closed.

On motion of Dr. J. Stanley Kenney, New York, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, the Secretary cast the ballot for the election of Dr. Louis H. Bauer as Trustee for a term of five years and the Speaker declared Dr. Bauer so elected.

ADDRESS OF DR. LOUIS H. BAUER

The Chairman presented Dr. Bauer, who addressed the House as follows:

Mr. Speaker and Members of the House: I am somewhat at a loss to know what to say. Naturally I appreciate the honor. I hope that goes without saying. But I want you to know that I also realize that it carries with it a tremendous responsibility and an enormous amount of work. I had the privilege during the past year of sitting in on a few of the meetings of the Board of Trustees when matters pertaining to the Council on Medical Service and Public Relations were under consideration, and I could not help but be impressed with the infinite detail and the very careful consideration which they give to every question which comes before them. I am very proud to be associated for the next five years with a group of men of that caliber. I feel somewhat in a state of tremulation in taking over those duties. It makes me wonder whether I have the necessary qualifications. I know many members of this House who have served a good deal longer than I have and are better qualified for this honor. But if hard work and earnest loyalty to the ideals of American medicine mean anything, I can assure you of that. I just hope that you won't expect me to fill the shoes of Roger Lee. I don't know any one who can do that. But if when this term is over you can say that I have in some small degree approached his stature, then I shall feel well satisfied.

ELECTION OF TRUSTEE TO SUCCEED DR. E. L. HENDERSON

Dr. J. B. Lukins, Kentucky, nominated Dr. E. L. Henderson, Louisville, Ky., to succeed himself as Trustee, and the nomination was seconded by Drs. Walter E. Vest, West Virginia; Louis A. Buie, Section on Gastro-Enterology and Proctology; F. S. Crockett, Indiana; Robert H. Hayes, Illinois; William Weston, Section on Pediatrics, and Thomas A. McGoldrick, New York.

Dr. Robert A. Peers, California, moved that the nominations be closed. The motion was seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried.

On motion of Dr. Louis A. Buie, Section on Gastro-Enterology and Proctology, seconded by Dr. William L. Mulherin,

Georgia, and carried, the Secretary was instructed to cast the ballot of the House for Dr. E. L. Henderson, Louisville, Ky., to succeed himself as a member of the Board of Trustees.

The Secretary cast the ballot of the House for Dr. Elmer L. Henderson, Louisville, Ky., to succeed himself as a member of the Board of Trustees for a term of five years, and the Speaker declared Dr. E. L. Henderson so elected.

ADDRESS OF DR. E. L. HENDERSON

The Chairman requested Dr. J. B. Lukins, Kentucky, to conduct Dr. Henderson to the platform, after which Dr. Henderson addressed the House as follows:

Mr. Speaker, Members of the House of Delegates: I wish to thank you for the honor which you have bestowed on me and for your expression of continued confidence, and I wish to tell you that I will continue to serve you as I have for the past five years to the best of my ability.

Nominations for Standing Committees

NOMINATIONS BY DR. HERMAN L. KRETSCHMER, PRESIDENT MEMBER OF THE JUDICIAL COUNCIL

Dr. Herman L. Kretschmer, President, nominated Dr. Edward R. Cuniffie, New York, to succeed himself as a member of the Judicial Council for a term of five years.

It was moved by Dr. Arthur J. Bedell, Section on Ophthalmology, that the House confirm the nomination, and the motion was seconded by Drs. Thomas M. Brennan and Thomas A. McGoldrick, New York, and Andrew F. McBride, New Jersey, and carried, and the Speaker declared Dr. Cuniffie duly elected a member of the Judicial Council for a term of five years.

MEMBER OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

Dr. Kretschmer nominated Dr. Charles H. Phifer, Chicago, to succeed Dr. J. Gurney Taylor, Milwaukee, as a member of the Council on Scientific Assembly for a term of five years.

On motion of Dr. J. Morrison Hutcheson, Virginia, seconded by Dr. G. Henry Mundt, Illinois, and carried, the nomination was confirmed, and the Speaker declared Dr. Charles H. Phifer, Illinois, duly elected for membership on the Council on Scientific Assembly for a term of five years.

ADDRESS OF DR. EDWARD R. CUNIFFIE

Mr. Speaker, Members of the House: I wanted to tell you a story which I told in New York in a recent election. Winston Churchill, when he was attending public school in England, won a medal for excellence in one of the studies that he was doing at the time, and he wrote to his mother apprising her of the fact. She wrote back and said "I am very glad to hear of your success, Winston. I know you don't deserve it, but try to live up to it."

ADDRESS OF DR. CHARLES H. PHIFER

Mr. Speaker, Mr. President, Members of the House of Delegates: I am most grateful to all of you for the honor you have conferred on me and I will do all that I can to fill the position to which I have been elected.

NOMINATIONS BY THE BOARD OF TRUSTEES

MEMBER OF COUNCIL ON MEDICAL EDUCATION AND HOSPITALS TO SUCCEED DR. CHARLES GORDON HEYD

Dr. R. L. Sensenich for the Board of Trustees reminded the House of the section in the Constitution and By-Laws directing the Board of Trustees to submit nominations for a member of the Council on Medical Education and Hospitals and that it has been the practice to nominate two persons for that place on the Council as a vacancy occurs. The Board of Trustees therefore placed in nomination the name of Dr. Charles Gordon Heyd to succeed himself, and also the name of Dr. Fred M. Smith of Iowa City.

The Tellers spread the ballot and the Secretary announced that 149 Delegates had registered present, and that 139 votes were cast, of which Dr. C. Gordon Heyd received 83 and Dr. Fred Smith 47.

The Speaker declared Dr. Charles Gordon Heyd elected by the House to membership on the Council on Medical Education and Hospitals for a term of seven years.

THE COUNCIL ON MEDICAL SERVICE AND
PUBLIC RELATIONS

The Speaker stated that according to a rule of the House adopted by the House on Monday, a ballot had been prepared by the Board of Trustees. The Board of Trustees is charged with placing in nomination before the House for membership on the Council on Medical Service and Public Relations these names:

Dr R L Sensenich for the Board of Trustees announced that there were difficulties in the manner of presentation because there were six places to fill and the By-Laws specifically stated that the term of membership on the Council shall be three years, provided at the end of the first year there shall be an election of two members for one year, two for two years and two for three years and that the House will have to decide on how it will select the various terms of office. However, after the first year the Board of Trustees shall present to the House of Delegates for Election to membership to the Council a list of three nominations for each vacancy. It was further provided that these must be selected according to geographic distribution. The Board of Trustees gave considerable study as to how best to present this and therefore prepared for the House a ballot on which there were three nominations each for six places and they were geographically arranged.

The names are (arranged alphabetically in each group) for group 1 Drs Joseph Londrigan, Hoboken, N J, Thomas A. McGoldrick, Brooklyn, and Walter G. Phippen, Salem, Mass.; group 2, Drs John H. Fitzgibbon, Portland, Ore., William R. Molony, Los Angeles, and Raymond L. Zech, Seattle; group 3, Drs William R. Brooksher, Fort Smith, Ark., Wingate M. Johnson, Winston-Salem, N C., and W. S. Leathers, Nashville, Tenn.; group 4, Drs A. W. Adson, Rochester, Minn., E. S. Hamilton, Kankakee, Ill., and Thomas I. Thornton, Waterloo, Iowa; group 5, Drs Carl McCaskey, Indianapolis, E. J. McCormick, Toledo, Ohio, and Walter I. Vest, Huntington, W. Va.; and group 6, Drs John W. Amoss, Denver, Forrest L. Loveland, Topeka, Kan., and James R. McVay, Kansas City, Mo., one man in each group on the ballot to be voted for.

The Speaker reread the Report of the Reference Committee on Rules and Order of Business that the House had adopted on Monday, after which Dr Holman Taylor, Texas, moved that the House cast its ballots in accordance with the grouping as set out by the Trustees. The motion was seconded by Dr Thomas M. Brennan, New York, and carried.

The Speaker appointed as additional tellers Drs James C. Sargent, Wisconsin, James M. Flynn, New York, and Stephen E. Gavin, Wisconsin.

Death of Dr. John T. Murphy

The Secretary made the following announcement:

Mr Speaker, Members of the House: It is with great regret that I have to announce to the House that a gentleman who has served this Association very faithfully for many years, Dr John T. Murphy, Secretary of the Section on Radiology, has died today. Dr Murphy is known to many members of this House and to thousands of physicians throughout the United States and has rendered most devoted service for all these years as Secretary of our Section on Radiology.

Dr William A. Mulherin, Georgia, moved that the tellers be requested to retire from the room and make a careful count of the ballot and bring back a report on it. The motion was seconded by Dr Thomas A. Pitts, South Carolina, and carried.

Election of Affiliate and Associate FellowsNOMINATIONS FOR AFFILIATE FELLOWSHIP APPROVED
BY THE COUNCIL ON SCIENTIFIC ASSEMBLY

The Secretary presented the following nominations for Affiliate Fellowship, properly approved by the Council on Scientific Assembly, which, on motion of Dr Thomas M. Brennan, New York, seconded by Dr William A. Mulherin, Georgia, and carried, were confirmed:

Abel, William C., Columbia, S C
Ayer, Thomas H., Westboro, Mass
Baker, Charles H., Chilhowie, Va
Berge, F. E., Long Beach, Calif
Brennemann, Joseph S., Reading, Va
Vt (nomination from Illinois State Medical Society)
Brown, John R., Hollywood, Calif
Burkholder, J. I., Chicago
Chipman, Ernest D., San Francisco
Cole, Lewis G., White Plains, N. Y.
Commons, E. L., Los Angeles
Cooke, W. L., Columbus, Ga
Culbert, William L., New York
Davis, George E., New York
Dayton, Hughes, Irvington, N. Y.
Dutton, Mary L., San Francisco
Edwards, Ralph F., Bigfork, Mont
(nomination from Minnesota)
Ellis, Frederick W., Newton Centre, Mass
Flanders, Louis W., Dover, N. H.
Goldman, Alexander, New York
Goodman, Charles, New York
Gray, G. M., Kansas City, Kans
Hackney, F. J., Centralia, Wash
Hixley, Charles E., Greenville, R. I.
Hicks, I. Clay, Huntington, W. Va
Hill, Roland, St. Louis
Kann, Ulysses S., New York
Kingsbury, Jerome, New York
Lamberton, R. F., Denver
Ledbury, John Wm., Uxbridge, Mass

Levins, Nathan N., Boston
Lynch, Charles F., Springfield, Mass
MacDonald, D. F., Taunton, Mass
MacLachlin, Charles, New Rockford, N. D.
Manierre, John T., Chicago
McPherson, George E., Amherst, Mass
Messinger, M. P., Oakfield, N. Y.
Mueller, Anton D., Chicago
Neff, Robert L., Joplin, Mo.
Oates, Charles E., North Little Rock, Ark.
Oliver, Ellwood, Pine Plains, N. Y.
Patterson, Robert Q., Little Rock, Ark.
Powers, Everett, Carthage, Mo.
Rowell, Hubert N., Berkeley, Calif
Schall, John H., Brooklyn
Seelig, M. G., St. Louis
Shipp, Augustus C., Little Rock, Ark.
Skog, A. L., Kansas City, Mo.
Slaughter, Emma Y., Lowell, Mass
Smith, Edwin M., Sr., Chicago
Smith, William H., Boston
Sondern, Frederic E., New York
Spurr, Kate C., St. Louis
Walker, Hubs R., Berkeley, Calif
(nomination from Nevada)
Watkins, John G., Little Rock, Ark.
Weinberger, C. F., Chicago

NOMINATIONS FOR ASSOCIATE FELLOWSHIP

The Secretary presented the following nominations for Associate Fellowship approved by the section indicated, which were confirmed on motion of Dr John J. Masterson, New York, seconded by Dr Thomas A. McGoldrick, New York, and carried.

SECTION ON PRACTICE OF MEDICINE

Wood, W. Barry, Jr., Clayton, Mo.

SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

Ryan, Edward J., D. D. S., Evanston, Ill.

SECTION ON PEDIATRICS

Anderson, George King, Evanston, Ill.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

Ansbacher, Stefan, Dr. Sc., Richmond Hill 18, N. Y.
Herwick, Robert T., Washington, D. C.
Ellis, Fred W., Ph. D., Chapel Hill, N. C.
Piekchaun, Ardzoony, Galveston, Texas
Hart, E. Ross, Philadelphia
Way, Edward L., Washington, D. C.

SECTION ON PATHOLOGY AND PHYSIOLOGY

Halpert, Bela, Oklahoma City
Lewis, Howard B., Ann Arbor, Mich.

SECTION ON NERVOUS AND MENTAL DISEASES

Moore, Thomas V., Brookland, D. C.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

Rostenberg, Adolph, Jr., Washington, D. C.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE
AND PUBLIC HEALTH

DeNosaquo, Norman, Chicago
Kerlan, Irvin, Washington, D. C.

Place of 1947 Annual Session

The Speaker appointed as additional tellers, so that the House could go on with the selection of the Place of 1947 Annual Session, Drs William Weston, Section on Pediatrics; William A. Mulherin, Georgia; Thomas A. Pitts, South Carolina; and H. B. Everett and E. G. Wood, Tennessee.

Dr R. L. Sensenich of the Board of Trustees reported that it was the opinion of the Board that it would be well to remind the House at this time that the 1947 session, which is the session for which you will now receive invitations, marks the one hundredth anniversary of the history of the American Medical Association. The Board has for some time past had in preparation extensive plans for the proper celebration of this anniversary in the session to be held in 1947. It is to be hoped at least that by 1947 either the war will be over or conditions will have so changed that it may be possible to entertain distinguished men from all over the world, men distinguished in scientific investigation, in education, in the practice of medicine and in all of those things which will be

of interest to us. In other words, in order that that session may be properly accommodated, it seemed important that the House give consideration to the needs of such meeting and that the city selected to entertain that particular meeting in 1947 should have sufficient available facilities for the housing properly of the Scientific Assembly and the presentation of addresses by these distinguished guests, but also it would be wisely known in advance that there would be sufficient housing accommodations at that meeting to celebrate properly the anniversary of the American Medical Association.

There have been invitations received, one from St. Louis and one from Atlantic City. I believe that the gentlemen representing those cities will present their invitations.

Dr. Robert E. Schlueter, Missouri, presented the advantages of St. Louis as a meeting place and extended an invitation to the Association to meet there in 1947.

Dr. Andrew F. McBride, New Jersey, cited the advantages of Atlantic City and invited the Association to meet in Atlantic City, N. J.

On request of the Speaker the Tellers spread the ballot.

To a request for the information the Secretary stated that the 1945 session will be held in New York City, and the 1946 session in the city of San Francisco.

The Speaker declared the ballot closed and requested the Tellers to proceed with the count.

The Secretary announced that 111 votes had been cast, of which Atlantic City received 80 and St. Louis 31.

On motion of Dr. Robert E. Schlueter, Missouri, duly seconded and carried, the selection of Atlantic City as the 1947 place of annual session was made unanimous, and the Chairman declared that Atlantic City had been selected as the place of session in 1947.

Address of Dr. Benvenuto R. Dino

The Chairman called on Dr. Benvenuto R. Dino, personal physician to the president of the Philippines, who addressed the House as follows:

Mr. Speaker, Members of the House: I wish to express my grateful appreciation for this distinct privilege to address you again this afternoon. I recall with pleasure that two years ago in Atlantic City I spoke to you and expressed the gratitude and the loyalty of the Filipino people to the government and people of America. Two years have passed and many developments have taken place, and, at this time, at your closing session of the House of Delegates it is significant to me that you remember the Philippines, because as you do you also remember freedom.

My friends, I wish to inform you that the Filipinos today are all over the battlefronts of the world. Thousands of them are in the armed forces, in the Army, the Navy and the Coast Guard, in the Merchant Marine; thousands are in agriculture, especially in California and in the Pacific Northwest; many thousands are in essential jobs and industries. And back home the battle of the Philippines is still on in the hills of Luzon, in the Visayan Islands of Panay, in Cebu, Negros and Mindanao. These facts have been transmitted by official Japanese broadcasts. These are things for you and for all of us to think about. In spite of the cruelties and the sufferings of this war, sometimes I am thankful because we, the Filipinos, are given another chance to prove to the government and the people of the United States our loyalty and our gratitude.

Election of Members of the Council on Medical Service and Public Relations

Dr. Henry S. Ruth, Section on Anesthesiology, reported for the Chairman of Tellers on nominations by the Board of Trustees for members on the Council on Medical Service and Public Relations the following result.

	Votes		Votes
Dr. Lendrigan	11	Dr. Adson	74
Dr. McGoldrick	96	Dr. Hamiltan	55
Dr. Phippen	29	Dr. Thornton	4
Dr. Fitzgibbon	102	Dr. McCaskey	12
Dr. Molony	21	Dr. McCormick	84
Dr. Zeeh	10	Dr. Vest	37
Dr. Brooksher	42	Dr. Amesse	21
Dr. Johnson	20	Dr. Loveland	12
Dr. Leathers	76	Dr. McVay	99

The Chairman announced the election of Dr. Thomas A. McGoldrick, New York, having received 96 votes, as the member selected in group 1; the election of Dr. John H. Fitzgibbon, having received 102 votes, as the member selected in the second group; the election of Dr. W. S. Leathers, having received 70 votes, as the member selected in group 3; the election of Dr. A. W. Adson, having received 74 votes, as the member selected in group 4; the election of Dr. E. J. McCormick, having received 84 votes, as the member selected in group 5, and the election of Dr. James R. McVay, having received 99 votes, as the member selected in group 6.

As to terms, under the rules adopted by the House, the two receiving the highest number of votes are elected each for a three year term, namely Drs. John H. Fitzgibbon, Oregon, having received 102 votes, and James R. McVay, Missouri, having received 99 votes; the two receiving the next highest number of votes, each for a two year term, namely Drs. Thomas A. McGoldrick, New York, having received 96 votes, and E. J. McCormick, Ohio, having received 84 votes, and the two receiving the next highest number of votes, each for a one year term, namely Drs. A. W. Adson, Minnesota, having received 74, and W. S. Leathers, Tennessee, having received 70 votes. The Chairman declared those gentlemen elected to these respective terms.

On motion of Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, duly seconded and carried, the House adjourned sine die at 2:55 p. m.

REGISTRATION AT CHICAGO

The total registration at Chicago was 7,284. Below are summaries of the registration by sections and by states.

Registration by Sections

Practice of Medicine	2,062
Surgery, General and Abdominal	1,223
Obstetrics and Gynecology	393
Ophthalmology	389
Laryngology, Otology and Rhinology	183
Pediatrics	334
Experimental Medicine and Therapeutics	91
Pathology and Physiology	242
Nervous and Mental Diseases	187
Dermatology and Syphilology	283
Preventive and Industrial Medicine and Public Health	209
Urology	184
Orthopedic Surgery	134
Gastro-Enterology and Proctology	260
Radiology	219
Anesthesiology	110
Miscellaneous Topics: Sessions for the General Practitioner	376
Two or More Sections or No Section Marked	503
Total	7,284

Registration by States

Alabama	58	Nevada	...
Arizona	18	New Hampshire	11
Arkansas	41	New Jersey	85
California	202	New Mexico	13
Colorado	93	New York	434
Connecticut	45	North Carolina	56
Delaware	6	North Dakota	13
District of Columbia	124	Ohio	497
Florida	65	Oklahoma	68
Georgia	9	Oregon	385
Idaho	9	Pennsylvania	15
Illinois	1,981	Rhode Island	37
Indiana	328	South Carolina	31
Iowa	203	South Dakota	93
Kansas	82	Tennessee	160
Kentucky	87	Texas	31
Louisiana	85	Utah	5
Maine	6	Vermont	66
Maryland	98	Virginia	62
Massachusetts	123	Washington	61
Michigan	396	West Virginia	371
Minnesota	196	Wisconsin	7
Mississippi	46	Wyoming	123
Missouri	212	Canada and Misc. Foreign	...
Montana	11		
Nebraska	169		

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Chicago session was characterized by the emphasis put on war medicine. The United States Army, the United States Army Air Forces and the United States Navy presented noteworthy exhibits of their own and lent generous aid in men and materials to other features of the meeting.

The Scientific Exhibit was reduced to about half its usual size because of the limitation of space in the Palmer House, and it was necessary to move the Motion Picture Program to the Morrison Hotel. The caliber of the exhibits which were shown was very high, and great credit is due to the exhibitors who, under the difficulties of wartime, were able to assemble such excellent material.

There were four Special Exhibits subsidized by the Board of Trustees.

The Special Exhibit on Fractures, under the auspices of a committee composed of Dr. Kellogg Speed, Chicago, chairman, Dr. Frank D. Dickson, Kansas City, Mo., and Dr. Walter Estell Lee, Philadelphia, was presented again this year. The United States Army cooperated in supplying materials, as well as soldiers who served as patients in the exhibit, and a group of thirty physicians and two nurses participated throughout the week in the demonstrations. A pamphlet describing the exhibit was distributed.

The Special Exhibit on the Treatment of Burns was organized by a committee consisting of Dr. Stanley J. Seeger, Texarkana, Texas, chairman, Capt. Ernest W. Brown (MC), U. S. Navy, and Capt. Joseph E. Hamilton, M. C., A. U. S. The exhibit covered the following subjects under the direction of the physicians indicated:

1. Treatment of War Burns, Capt. Joseph E. Hamilton, M. C., A. U. S.
2. Local Treatment of Burns, Dr. Roy D. McClure, Henry Ford Hospital, Detroit.
3. Treatment of Burns: General Care of the Burned Patient, Dr. Henry N. Harkins, Johns Hopkins University School of Medicine, Baltimore.
4. Establishment of a Skin Cover Following a Thermal Burn, Dr. Earl C. Padgett, University of Kansas School of Medicine, Kansas City, Mo.
5. Chemical Burns of the Eyes, Dr. Alan C. Woods, Johns Hopkins Hospital, Baltimore.
6. Electric Burns, Dr. Hart Ellis Fisher, Chicago.
7. Prevention of Burns in the Navy, Capt. Ernest W. Brown (MC), U. S. Navy (retired).

In addition, a group of physicians assisted in the demonstrations throughout the week, and pamphlets covering all phases of the treatment of burns were distributed.

The Special Exhibit on Chemotherapy and Infectious Diseases was presented under the auspices of a committee composed of Dr. Chester S. Keefer, Boston, chairman, Dr. Henry E. Meleney, New York, and Dr. Austin E. Smith, Chicago. Emphasis was placed on tropical diseases, and a group of physicians who had special experience in foreign countries with these diseases was present throughout the week to demonstrate the exhibit. A pamphlet describing the exhibit was distributed.

The Special Exhibit on Rehabilitation was presented by the Council on Industrial Health and the Council on Physical Therapy of the American Medical Association in cooperation with representatives of the Army, Navy, Veterans Administration and Federal Security Agency. The exhibit emphasized the current importance of rehabilitation and reemployment and covered the following subjects under the direction of the physicians indicated:

1. Fractures, Dr. Kellogg Speed, Chicago.
2. Amputations, Capt. Henry H. Kessler (MC), U. S. N. R.
3. Lame Backs, Dr. Frank R. Ober, Boston.
4. Hard of Hearing, Dr. William E. Grove, Milwaukee.
5. Tuberculosis, Dr. Leroy U. Gardner, Saranac Lake, N. Y., and Mr. Holland Hudson, New York.
6. Heart Disease, Dr. William D. Stroud, Philadelphia, and Dr. Rufus B. Crain, Rochester, N. Y.
7. Psychiatry, Dr. George S. Stevenson, New York.
8. Community Relations, Dr. Harold A. Vonachen, Peoria, Ill.
9. Reemployment, Dr. Max R. Burnell, Flint, Mich.

Special demonstrators were-in-attendance during the week.

A group of exhibits on Tropical Medicine attracted much attention and received special commendation from the Committee on Awards.

The Section on Practice of Medicine presented nine exhibits, one of which received an award. Dr. Thomas C. Garrett, Philadelphia, was the section representative.

The Section on Surgery, General and Abdominal, presented ten exhibits, two of which received awards, including a Silver Medal. The section representative was Col. Grover C. Penberthy, M. C., A. U. S.

The Section on Obstetrics and Gynecology had eight exhibits, one of which received an award. Dr. Frederick H. Falls, Chicago, was the section representative.

The Section on Ophthalmology had two exhibits, one of which received an award. The committee representing the section was composed of Dr. Georgiana D. Theobald, Oak Park, Ill., chairman, Lieut. Col. Derrick Vail, M. C., A. U. S., and Dr. A. B. Reese, New York.

The Section on Laryngology, Otology and Rhinology presented seven exhibits, one of which received an award. The section representative was Dr. Paul H. Holinger, Chicago.

The Section on Pediatrics had four exhibits. Dr. Sterling H. Ashmun, Dayton, Ohio, was the section representative.

The Section on Experimental Medicine and Therapeutics presented nine exhibits, three of which received awards, including a Gold and a Silver Medal. The section representative was Dr. Robert W. Wilkins, Boston.

The Section on Pathology and Physiology presented ten exhibits, three of which received awards, including a Gold Medal. The section representative was Dr. Frank W. Konzelmann, Philadelphia.

The Section on Nervous and Mental Diseases had five exhibits, one of which received an award. Dr. F. P. Moersch, Rochester, Minn., was the section representative.

The Section on Dermatology and Syphilology presented six exhibits, one of which received an award. Dr. Hamilton Montgomery, Rochester, Minn., was the section representative.

The Section on Preventive and Industrial Medicine and Public Health had ten exhibits, one of which received an award. Dr. Paul A. Davis, Akron, Ohio, was the section representative.

The Section on Urology had three exhibits. Dr. John H. Morrissey, New York, was the section representative.

The Section on Orthopedic Surgery showed four exhibits, two of which received awards. Dr. Fremont A. Chandler, Chicago, was the section representative.

The Section on Gastro-Enterology and Proctology presented three exhibits, one of which received a Bronze Medal. Dr. Grant H. Laing, Chicago, was the section representative.

The Section on Radiology had two exhibits, one of which received a Bronze Medal. The section representative was Dr. S. W. Donaldson, Ann Arbor, Mich.

The Section on Anesthesiology had six exhibits, two of which received awards. The section representative was Dr. E. A. Rovenstine, New York.

Other features of the Chicago session included the question and answer conferences on Rheumatic Fever presented by the Section on Pediatrics in cooperation with the Rheumatic Fever Committee of the American Academy of Pediatrics, and on Heart and Peripheral Vascular Disease presented by the Section on Practice of Medicine in cooperation with the American Heart Association.

Fifty motion picture films were shown on a regular schedule in the Casino at the Morrison Hotel. Most of the films were shown twice during the week.

Twenty-three papers which were read before the sections of the Scientific Assembly were correlated with the exhibits in the Scientific Exhibit.

REPORT OF THE COMMITTEE ON AWARDS

The Committee on Awards made the following report:

GROUP I

(Awards in Group I are made for exhibits of individual investigation, which are judged on the basis of originality and excellence of presentation.)

The GOLD MEDAL to William H. Feldman, H. Corwin Hinshaw and Frank C. Mann, Mayo Foundation, Rochester, Minn., for the exhibit on Chemotherapy of Tuberculosis.

The SILVER MEDAL to Robert H. Williams, Harvard Medical School and Boston City Hospital, Boston, for the exhibit on Thiouracil in Thyrotoxicosis.

The BRONZE MEDAL to J. A. Roth, A. C. Ivy and A. J. Atkinson, Northwestern University Medical School, Chicago, for the exhibit on Effect of Caffeine on the Stomach.

CERTIFICATES OF MERIT, Group I, are awarded to the following (alphabetically arranged):

Paul N. Harris and K. K. Chen, the Lilly Research Laboratories, Indianapolis, for exhibit on Experimental Liver Injury.

George N. Papanicolaou, Herbert F. Traut and Andrew A. Marchetti, Cornell University Medical College, New York, and Joe V. Meigs, Maurice Fremont-Smith, Ruth M. Graham, Israel Kapnick and Lois T. Janzen, Harvard Medical School, Massachusetts General Hospital, Boston, for the exhibit on the Vaginal Smear in the Diagnosis of Cancer.

R. H. Rigdon, University of Arkansas School of Medicine, Little Rock, for the exhibit on Pathologic Lesions Occurring in Human and Experimental Malaria.

H. S. Van Orstrand and Robert Hughes, Cleveland Clinic, Cleveland; J. M. deNardi, Lorain, Ohio, and Morris G. Carmody, Painesville, Ohio, for the exhibit on Industrial Diseases in the Beryllium Industry.

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged):

That of H. J. Corper, National Jewish Hospital, Denver, on the Transdermal Tuberculin Test.

That of A. C. Hilding, Duluth, Minn., on the Production of Negative Pressure in Respiratory Tract by Ciliary Action—Probable Relation to Postoperative Atelectasis.

That of Mildred Trotter, Virginia S. Lanier, Gordon S. Letterman and Howard E. McKnight, Department of Anatomy, Washington University School of Medicine, St. Louis, on Continuous Caudal Analgesia; Pertinent Anatomic Features.

That of Charles S. White, Jacob J. Weinstein and J. Lloyd Collins, George Washington Medical School and Gallinger Hospital, Washington, D. C., on Protein Metabolism and the Use of Protein Digest in Surgery; Preparation of Plasma by Sedimentation by a New Method.

GROUP II

(Awards in Group II are made for exhibits which do not exemplify purely experimental studies and which are judged on the basis of excellence of presentation and correlation of facts.)

The GOLD MEDAL to Armand J. Quick, Marquette University School of Medicine, Milwaukee, for the exhibit on Determination of Prothrombin.

The SILVER MEDAL to Keith S. Grimson, Duke University, Durham, N. C., for the exhibit on Paravertebral Sympathectomy for Hypertension.

The BRONZE MEDAL to Leo G. Rigler, University of Minnesota, Minneapolis, Henry S. Kaplan, Lieutenant, M. C., A. U. S., and Daniel L. Fink, Captain, M. C., A. U. S., for the exhibit on Pernicious Anemia, Benign Polyps and Carcinoma of the Stomach.

CERTIFICATES OF MERIT, Group II, are awarded to the following (alphabetically arranged):

Urban H. Eversole, Leo V. Hand and Morris J. Nicholson, the Lahey Clinic, Boston, for the exhibit on Spinal Anesthesia.

Harry Gold and McKeen Cattell, Cornell University Medical College, New York, for the exhibit on Recent Developments in Digitalis.

J. Q. Griffith Jr. and Wilfred E. Fry, University of Pennsylvania, Philadelphia, for the exhibit on Papilledema; Mechanism and Clinical Applications.

J. E. M. Thomson, University of Nebraska, Lincoln, for the exhibit on Local Shock—A Vasomotor Phenomenon Occurring in Certain Severe Injuries of the Extremities.

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged):

That of C. W. Emmons, National Institute of Health, United States Public Health Service, Bethesda, Md., on Fungi of Dermatologic Importance.

That of John J. Fahey, Chicago, on the Circulation of the Femoral Head.

That of E. S. Gurdjian and John E. Webster, Major, M. C., A. U. S., Wayne University College of Medicine and Grace Hospital, Detroit, on Traumatic Intracranial Hemorrhage.

That of Kurt Lange and Linn J. Boyd, New York Medical College, New York, on the Use of Fluorescein to Determine the Adequacy of Circulation.

CERTIFICATE OF APPRECIATION

A Certificate of Appreciation is awarded to J. Ramos e Silva, Escola de Medicina e Cirurgia, Rio de Janeiro, Brazil, for his contribution on Brazilian Dermatoses.

SPECIAL COMMENDATION

Special commendation is given to the group of exhibits on tropical medicine, as well as to the question and answer conferences on rheumatic fever and heart and peripheral vascular diseases.

The Committee on Awards wishes to offer appreciation and commendation to the United States Army, the United States Army Air Forces and the United States Navy for their excellent exhibits and for their cooperation in the over-all success of the Scientific Exhibit at the 1944 Session.

SUBSIDIZED EXHIBITS

The Committee on Awards commends highly the Special Exhibits on Fractures, the Treatment of Burns, Chemotherapy and Infectious Diseases, and Rehabilitation which are sponsored by the Board of Trustees of the American Medical Association.

COMMENTS

The Committee regrets its inability to have included in the awards a consideration of the motion pictures which are being shown this year in the Casino at the Morrison Hotel. Because of unusual space and time considerations, many pictures could not be exhibited prior to the final meeting of the Committee on Awards.

The representatives to the Scientific Exhibit from the sixteen sections have rendered invaluable service to the Committee on Scientific Exhibit and to the Director of the Scientific Exhibit in encouraging the presentation of exhibit material of special interest and merit. Only the limitation in the number of awards available prevented official recognition of a large number of exhibits of undoubted merit.

Finally, the Committee on Awards desires to compliment the Director of the Scientific Exhibit of the American Medical Association, Dr. Thomas G. Hull, for having dealt in a splendid fashion with the many difficulties encountered in arranging the Scientific Exhibit under the most trying conditions of wartime.

VINCENT W. ARCHER, University, Va., Chairman.
DANIEL S. CUNNING, New York.
THOMAS G. ORR, Kansas City, Kan.
JOHN W. SCOTT, Lexington, Ky.
RALPH M. WATERS, Madison, Wis.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. Res. 592 has been agreed to by the House of Representatives, directing the House Committee on Education to make a study of the effect on the colleges and universities in the United States of (1) reduction in enrolment and in faculties as a result of service by students and faculty members in the armed forces or in other war activities and (2) recent curtailment and prospective further curtailment of Army and Navy training programs in such colleges and universities. This committee will be authorized to formulate such legislation as it deems appropriate for presentation to the House. H. R. 1506 has passed the House and Senate, a bill to amend the Pay Readjustment Act of 1942. Among other amendments, this legislation will permit service in the Medical Reserve Corps to be counted for pay purposes. H. R. 4615 passed the House, a bill to establish, for the investigation and control of tuberculosis, a division in the United States Public Health Service. In the Senate, this bill was included as an amendment to H. R. 4624, the bill consolidating and revising the laws relating to the United States Public Health Service, and was enacted by the Senate in that form. H. R. 4624 has passed the Senate with amendments, and those amendments have been agreed to by the House, a bill consolidating and revising the laws relating to the United States Public Health Service. H. R. 4881 has passed the House and Senate, amending the federal narcotic laws to include Isonipeaine. H. R. 4899 has been agreed to by the conferees, providing appropriations for the Department of Labor, the Federal Security Agency and related independent agencies for the fiscal year ending June 30, 1945. As agreed to in conference, this bill appropriates \$42,800,000 for a continuation of the E. M. I. C. program, extends the benefit of the program to Army aviation cadets and provides that 2.5 per cent of the amounts allotted to the states may be used for administrative purposes. H. R. 4967 has passed the House and Senate and the conference report has been agreed to, making appropriations for the military establishment for the fiscal year ending June 30, 1945. This bill provides, among other things, that no appropriation contained in it shall be available for any expense incident to educating persons in medicine, including veterinary, or dentistry, if any expense on account of their education in such subjects was not being defrayed out of appro-

priations for the Military Establishment for the fiscal year 1944 prior to June 7, 1944. The foregoing proscription is subject to an exception that nothing in it "shall interfere with compliance with the provisions of law authorizing the detail of officers and enlisted men of any component of the Army of the United States as students, observers and investigators as contemplated by section 127 (a) of the National Defense Act, approved June 3, 1916, as amended."

Bills Introduced.—H. R. 5079, introduced by Representative Dondero, Michigan, provides for vocational training and retraining programs for the occupational adjustment and readjustment of veterans returning from military service, war workers demobilized from war production plants, and for other youth and for adults. H. R. 5103, introduced by Representative Rogers, Massachusetts, provides for the establishment of a permanent Nurse Corps in the Veterans' Administration. H. R. 5128, introduced by Representative Miller, Missouri, proposes the deferment in each calendar year under the Selective Training and Service Act of not less than 6,000 medical students and not less than 4,000 dental students.

DISTRICT OF COLUMBIA

Changes in Status.—H. R. 3150 has passed the House, proposing to amend the healing arts practice act of the District of Columbia so as to modify the requirement that an applicant applying for a license to practice must have practiced in another jurisdiction for not less than two years. As a substitute for this requirement, the bill would provide (1) that the applicant must have practiced in another jurisdiction for not less than one continuous year out of three years immediately preceding the date of his application and (2) that that one year's continuous practice may be either private, institutional or governmental, or a combination thereof. H. R. 4867 has passed the House, extending the health regulations of the District of Columbia relating to restaurants to such establishments operated by the government.

Bill Introduced.—H. R. 5065, introduced, by request, by Representative Randolph, West Virginia, proposes to require examination and laboratory tests for syphilis, gonorrhea and tuberculosis of all applicants for marriage licenses before the issuance thereof in the District of Columbia.

WOMAN'S AUXILIARY

Florida

The Florida auxiliary held its state convention April 13-14 at St. Petersburg, with Mrs. F. W. Krueger, president, presiding.

Georgia

Mrs. W. T. Randolph, president-elect of the Georgia auxiliary, has written the following message to members: "A call is being made on all doctor's wives to enlist in auxiliary work for the duration. Every community looks to the doctor's wife to be an authority on subjects concerning health and education. She is obligated to speak authoritatively, and there is no better source of information than the medical auxiliary, since its object, as set forth in the constitution, is 'to extend the aims of the medical profession to all organizations which look to the advancement of health and education; to assist in the entertainment of all state, district, county and other medical meetings; to promote acquaintanceship among physicians' families that fellowship may increase.' Every physician's wife owes it to herself and to her husband to become affiliated with the auxiliary to the medical society in some way."

Illinois

The annual convention of the Illinois auxiliary was held at the Palmer House, Chicago, May 16-17. Mrs. Frederick Tice, Oak Park, was convention chairman.

Iowa

At a recent meeting of the Iowa auxiliary, Mrs. Jay C. Decker of Sioux City was installed as president and Mrs. Soren S. Westly of Manly was chosen president-elect. Mrs. William S. Reilly of Red Oak is the retiring president.

The Sioux City auxiliary had a tea recently at which election of officers took place. Many projects were discussed and plans made to cooperate with the Woodbury County Medical Society in its activities concerning the Wagner-Murray-Dingell bill.

Kansas

Mrs. Leo J. Schaeffer has been elected president of the Kansas auxiliary and has chosen the national program of "Health and Postwar Planning" as the state's slogan for 1944-1945.

Mississippi

The Mississippi auxiliary held its state convention May 9-10. Mrs. Eben J. Carey, national president, was the guest speaker at the annual luncheon. Mrs. J. L. Clark is the new president.

North Carolina

The North Carolina Auxiliary held its twenty-second annual convention at Pinehurst May 1-3. A novel feature was the presentation of door prizes at the meeting of a war bond and many "warsages." Mrs. L. T. Pace of Greenville was the president.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

District Meetings.—At a meeting of the Ninth Councilor District Medical Society in Harrison, June 7, the speakers included Dr. Merlin J. Kilbury, Little Rock, on "Interpretation of Laboratory Findings"; Dr. Wesley J. Ketz, Batesville, "Treatment of Urinary Infections," and Dr. Ruth E. Lesh, Fayetteville, "Torsion of Ovarian Cysts in Children." Dr. Joseph F. Shuffield, Little Rock, president of the state medical society, also spoke.—The Fifth Councilor District Medical Society was addressed on May 16 in Magnolia by Drs. Joe D. Nichols, Atlanta, Texas, on "Intravenous Anesthesia" and Wiley R. Buffington, New Orleans, "Certain Ocular Manifestations Resulting from Systemic Diseases."

CALIFORNIA

Osteopath Sentenced for Abortion.—Clyde A. Pierson, D.O., San Bernardino osteopath, was recently sentenced by Judge Charles L. Allison to serve two to five years in San Quentin, after his motion for a new trial on three counts of abortion had been denied. Through counsel, Pierson served notice of appeal, and a stay of execution was granted pending its hearing. Judge Allison increased bail from \$2,500 to \$10,000, and the osteopath promptly posted the amount in cash.

Illegal for Barber to Administer Eye Drops.—In an opinion on May 23 Attorney General Robert W. Kenny ruled that it is illegal for a barber to administer eye tonic drops, it is reported. Treatment of the eyes, the opinion said, either with medicine or with surgery, is limited to physicians and surgeons. The opinion was to C. E. Rynearson, secretary of the state board of barber examiners. The ruling said "Many eye tonics are drugs, under California law, and the barber administering them may be guilty of practicing medicine without a license. The use of any product classified as a drug by those not qualified to administer it could, in certain instances, lead to dangerous results. Barber shops may pass along a dangerous infection."

Incidence of Meningitis in San Francisco.—That the incidence of epidemic meningitis is increasing in San Francisco is evidenced by a report of Dr. Jacob C. Geiger, director of public health, San Francisco, appearing in *California's Health*, April 29. In 1942 a total of 33 cases with 10 deaths was reported. In 1943 a total of 153 cases, the highest number ever to be reported in one year in San Francisco, was recorded, with case reporting reaching a peak in March 1943 with 28 cases, more than had been previously recorded in a single month. The first twelve weeks of 1944, 64 cases were recorded, or 42 per cent of the annual total for 1943. For the first three months of 1944 the disease increased more than 52 per cent in the state as a whole as compared with the first three months of 1943; 423 cases in civilians were reported in the state during this period of 1944 as compared with 277 during the corresponding period of 1943. The total number of civilian cases recorded in the state was 207 in 1942, 927 in 1943 and 423 during the first quarter of 1944.

DELAWARE

Society News.—Dr. William H. Perkins, dean and professor of preventive medicine, Jefferson Medical College of Philadelphia, discussed "Tropical Diseases of Concern to the Home Front" before the New Castle County Medical Society and the Delaware Academy of Medicine, Wilmington, May 16. Dr. Henry J. Tumen, Philadelphia, addressed the society April 18 on "Acute Infectious Hepatitis."

DISTRICT OF COLUMBIA

Personal.—Dr. Robert Lomax Wells was recently named medical director of the Chesapeake and Potomac Telephone Company to succeed Dr. William Cabell Moore, who had held the office since March 1922. The latter will continue in private practice.

Dr. Ramsey Resigns as Head of the Department of Obstetrics.—Dr. Herbert P. Ramsey has resigned as executive officer of the department of obstetrics at George Washington University School of Medicine but will remain on the

faculty as clinical professor of obstetrics and gynecology according to *Medical Annals*. Dr. Radford Brown, professor of obstetrics and gynecology, will be acting executive officer until August 31.

ILLINOIS

Dearholt Medal Awarded to Dr. Bosworth.—Dr. Robson Bosworth, medical director of Pleasant View Sanatorium East St. Louis, was given the Dearholt Medal during annual meeting of the Mississippi Valley Conference on Tuberculosis at its meeting in Chicago, May 10. The citation accompanying the award emphasized Dr. Bosworth's contribution to the development of sanatoriums for tuberculous patients and "a pioneer in the development of standards for outpatient work." The medal is awarded annually for "a marked special service to tuberculosis control in the conference area." Dr. Bosworth is a former president of the Mississippi Valley Conference on Tuberculosis.

Chicago

Aleck Bauer Dies.—Aleck Bauer, founder of Bauer Black, division of the Kendall Company, died June 11, aged 84.

Mac Cahal Returns to Chicago.—Mr. Mac F. Cahal, who resigned as executive secretary of the American College of Radiology to accept a similar position with the Southwestern Medical Foundation, Dallas, has resigned the latter position to return to his post with the American College of Radiology. Mr. Cahal will resume his former activities about August.

Special Society Elections.—At the meeting of the Chicago Society of Internal Medicine, May 22, Dr. Lee C. Galloway was named president and Dr. George E. Wakerlin vice president. Dr. Howard L. Alt was reelected secretary-treasurer.—Dr. James E. Fitzgerald was chosen president-elect of the Chicago Gynecological Society at its annual meeting, May 19, and Dr. William J. Dieckmann was installed as president. Other officers include Drs. Ralph A. Reis, vice president, Henry Buxbaum, treasurer, and Herbert E. Schmitt, secretary.—Dr. Theophil P. Grauer was chosen president of the Chicago Urological Society at its meeting, May 25, Dr. James W. Merricks vice president, and Dr. Russell D. Herold was reelected secretary-treasurer.

MICHIGAN

New Building for Penicillin Laboratory.—Plans are under way to build a \$15,000 penicillin laboratory in Lansing. It is the hope of the Michigan Department of Health eventually to add penicillin to the list of products distributed free to the physicians of the state.

Dr. Vanderslice Joins Mott Foundation.—Dr. David A. Vanderslice has resigned as director of the school health service of the Ann Arbor Public Schools to become medical consultant to the Flint Public Schools and director of the Charles Stewart Mott Foundation health center. The new appointment was effective July 1.

University News.—Approval has been given to a contract between the federal Office of Scientific Research and Development and Wayne University College of Medicine, Detroit, to conduct a study on the influence of oral administration of sodium lactate solution. The government will provide \$7,500 to cover the cost of the project, which will be carried out under the direction of Dr. John W. Hirshfeld, assistant professor of surgery at the college of medicine.

Wayne University Initiates Sigma Xi Members.—At the first annual initiation of the Wayne University Chapter of the Society of Sigma Xi, May 26, Dr. Milton H. Erickson, director of psychiatric research and training, Eloise Hospital and Infirmary, discussed "Psychiatry as a Wartime Science." William H. Pyle, president of the chapter, was toastmaster at the banquet. New initiates in the society included Drs. William L. Brosius, Sylvester E. Gould, Gordon B. Myers, Paul H. Noth, Thomas L. Patterson, Ph.D., and Dr. Erickson.

Society Serves Families of Servicemen.—Families of servicemen who are unable to obtain the services of their regular family physician may call the Medical Information Center of the Wayne County Medical Society under a new plan recently adopted by the society. The service includes the making available of names of members of the society in the neighborhood of the inquirer and the provision of service to the family at either a minimum or a no cost basis. More than 100 members of the society have registered to take emergency calls day and night, while an additional 600 have offered free aid to servicemen's families. Physicians will be available within a 3 mile radius of every Wayne County family. A map at the Medical Information Center will be pinned for doctors' homes and offices, from which the attendant will select the convenient physician for any call.

MINNESOTA

Personal.—Dr. Sidney A. Slater, Worthington, was presented with a gold wrist watch at a recent meeting of the Minnesota Public Health Association in recognition of his six years of service as president of the association.

Hospital News.—Heron Lake Hospital Association is the name of the newly incorporated hospital administration taking over the former Southwestern Minnesota Hospital at Heron Lake. The board of trustees is headed by Dr. Alfred G. Chadbourne.

Dr. Hill Succeeds Dr. Harrington.—Dr. Frank J. Hill, Bismarck, since November 1940 health officer of North Dakota, has been appointed health commissioner of Minneapolis to succeed Dr. Francis E. Harrington, who will retire on June 19 (THE JOURNAL, Dec. 11, 1943, p. 980).

Osteopath Ends Life While on Trial for Manslaughter.—James O. Humbert, Minneapolis, a licensed osteopath, was found dead in a hotel room, May 7, with an artery slashed in his left wrist. The coroner of Hennepin County, Dr. Russell R. Heim, Minneapolis, recorded the death as a suicide. Humbert was on trial in the district court of Hennepin County on an indictment charging him with the crime of manslaughter in the first degree. According to the Minnesota State Board of Medical Examiners, Humbert was indicted on a charge of performing an abortion.

NEBRASKA

Rheumatic Disease Program.—The state division of crippled-children's services has opened a program for the care of children with rheumatic fever in Douglas and Sarpy counties. Children from these counties who are under 21 years of age and are suffering from or suspected to be suffering from rheumatic fever may be referred for diagnosis and consultation service. If they are found to be in need of care and their parents are unable to provide such care they will be accepted for treatment. Diagnostic clinics will be held at the University of Nebraska Hospital. Cooperating agencies concerned in the program are the University of Nebraska Hospital and Dispensary, Omaha Visiting Nurse Association, state department of health nurses assigned to Sarpy county, Nebraska Society for Crippled Children, and the Douglas County Assistance Department. It is hoped that the program will serve as a demonstration of the need of and possibilities for the care of children with or suspected of having rheumatic fever.

NEW YORK

Changes in Health Officers.—Dr. Henry C. Lapp has resigned as health officer of North Tonawanda, a position he had held for twenty-two years; he had been a member of the board of health for twenty-five years. Dr. Edward M. Baugasser, Buffalo, has been appointed health officer of Lancaster to succeed Dr. Clarence B. Mackey, who is ending twenty-three years in the position. Dr. James C. Boland, Binghamton, has been appointed health officer of Troy.

Graduate Lectures.—"Penicillin Therapy" was the title of a graduate lecture presented recently under the auspices of the state medical society and the state department of health. Dr. James E. McCormack, New York, gave the lecture before the Broome County Medical Society, Binghamton, May 16, Richard C. Arnold, Surgeon, U. S. Public Health Service, before the Medical Society of the County of Warren, Glens Falls, June 15. Dr. Frederick N. Marty, Syracuse, delivered the lecture before the Medical Society of the County of St. Lawrence, Potsdam, June 22. Dr. McCormack also addressed the Westchester County Medical Society, White Plains, June 20, and Dr. William J. Orr, Buffalo, the Cattaraugus County Medical Society in Allegany, June 22.

New York City

Hospital News.—The Herbert N. Straus mansion at 9 East Seventy-First Street will be transformed into a convalescent hospital as an adjunct to St. Clare's Hospital at 415 West Fifty-First Street.

Personal.—Henry C. Sherman, Ph.D., who recently resigned as chief of the bureau of human nutrition and home economics of the U. S. Department of Agriculture, has returned to his position as executive officer of the department of chemistry at Columbia University.

James Bryan Executive Secretary of New York County Society.—James E. Bryan, White Plains, has resigned as executive secretary of the Westchester County Medical Society to accept a similar position with the Medical Society of the County of New York, effective in September.

Gonococcus Culture Service—Penicillin Treatment.

Physicians in private practice are now offered the opportunity of utilizing the gonococcus culture service of the New York City Department of Health. Specimens will be taken for culture from patients with gonorrhea or suspected of having gonorrhea. This service is available to patients of private physicians who cannot afford private laboratory service. At present examinations are made only at the central clinic, 130 Leonard Street, Manhattan. Sulfonamide resistant gonorrheal patients may be referred for treatment with penicillin to the Leonard Street clinic, where treatment may be obtained for these patients without cost, irrespective of their economic status.

NORTH CAROLINA

State Medical Election.—Dr. Oren Moore, Charlotte, was chosen president-elect of the Medical Society of North Carolina at its annual meeting in Pinehurst and Dr. Paul F. Whitaker, Kinston, was installed as president. Other officers include Drs. William H. Smith, Goldsboro, and Zack D. Owens, Elizabeth City, vice presidents. Dr. Roscoe D. McMillan, Red Springs, is secretary-treasurer. The society voted to meet in Pinehurst again in May 1945.

OHIO

Hard of Hearing Society Changes Name.—The Cleveland Association for the Hard of Hearing, with headquarters at Garfield House, has changed its name to the Cleveland Hearing Center.

School History to Be Published.—The "Centennial History of the School of Medicine of Western Reserve University," prepared by Frederick C. Waite, Ph.D., professor emeritus of histology and embryology, was recently submitted for publication.

Civilian Physicians Awarded Service Ribbons.—A group of forty-seven physicians were presented with service ribbons at a dinner June 7 after they were cited for meritorious service by the War Department. The physicians were honored for having helped the Army and Navy examine more than 300,000 men since the induction center opened in Cleveland in January 1941, according to the Cleveland Press.

Ninety Years of Age.—Dr. Edwin W. Mitchell, who graduated at the Medical College of Ohio, now known as the University of Cincinnati College of Medicine, in 1882 and who served as a member of the staff through the school's development, observed his ninetieth birthday, May 29. Dr. Mitchell has served as professor of materia medica and therapeutics, professor of pediatrics and professor of theory and practice of medicine and is now professor emeritus.

PENNSYLVANIA

State Survey of Mentally Ill.—Dr. Howard K. Petry, Harrisburg, chairman of the committee on mental hygiene of the state medical society, was appointed chairman of a board appointed recently to survey state institutions for the care of the mentally ill.

Licenses Revoked.—The state board of medical education and licensure announced that the following licenses were revoked at a meeting of the board on April 26:

Dr. Francis J. Trygar, Philadelphia, because of conviction in the Philadelphia County Courts, upheld by the Superior Court of Pennsylvania, of criminal abortion.

Dr. Christos N. Spanos, Pittsburgh, because of conviction in the Philadelphia County Courts, upheld by the Superior Court of Pennsylvania, of criminal abortion.

Dr. Morton Reese, Mount Clemens, Mich., because of conviction in the Federal Court at Detroit of violation of the federal narcotic laws.

Dr. Alexander J. P. Conlen, Allentown, because of grossly unethical conduct by which he induced citizens to become a prey to exploitation.

Mrs. Mary Ferrari, midwife, Scranton, because of conviction in the Lackawanna County Court of criminal abortion.

The license of Dr. Modestus William S. Buechele, formerly of Altoona, now in the armed forces, was restored.

Philadelphia

Personal.—Dr. R. Manning Clarke, clinical professor of medicine at the College of Medical Evangelists, Los Angeles, has been appointed to a similar position at the Woman's Medical College of Pennsylvania.

Fund for Free Hospitalization of Cancer Patients.—The Dorothy Case Blechschmidt Cancer Prevention Clinic of Doctors Hospital was recently presented with a \$10,000 fund for free hospitalization of cancer patients of the clinic. The clinic was organized two years ago and is named for Dr. Blechschmidt, who serves as its chief of staff. The clinic is financed by a membership of almost 1,000 women. No salaries are paid, for all the service is voluntary.

TEXAS

Narcotic Violations.—Dr. Gus Levin, Fayetteville, on March 14 pleaded guilty in the U. S. District Court in Houston to a violation of the federal narcotic law. He was sentenced to imprisonment for a term of eighteen months, which was probated for a period of five years. Dr. Charles Hudson Turner, Dallas, pleaded guilty in the U. S. District Court at Dallas, May 11, to a violation of the federal narcotic law in that he forged the name of another physician to a narcotic prescription. Sentence was suspended and Dr. Turner was placed on probation of one day, according to the federal deputy commissioner of narcotics.

Trees Dedicated to Dr. Carrell.—Two pecan trees in the Latin American quarter of Dallas were recently dedicated to the memory of the late Dr. William B. Carrell by Pan American Round Table No. 1, Dallas, of which the late physician's wife is director. Mrs. T. B. Griffith, assistant director of Pan American Round Table No. 1, presented the trees to Mayor Woodall Rodgers and the city of Dallas and to Mexican Consul Luis Perez-Abreu as well as to the Latin Americans. Special tribute was paid to the work done with crippled children by Dr. Carrell, who at the time of his death in February was professor of orthopedic surgery at the Southwestern Medical Foundation.

Closed Psychopathic Hospital to Be Opened as Venereal Disease Center.—The state board of control and the state board of health have an agreement to operate the Galveston State Psychopathic Hospital, closed since August 1943, as a rapid treatment center for venereal disease in cooperation with the U. S. Public Health Service. Facilities at the university and the fever therapy department of the John Sealy Hospital have been made available to the state board of health to assist in the new development. According to an announcement from Chauncey D. Leake, Ph.D., dean of the University of Texas School of Medicine, Galveston, it is believed that the center may become available for special research in new means of syphilis control as developed by Dr. Chester N. Frazier, professor of dermatology and syphilology at the school, and that the center may be utilized for special studies in psychiatry under the direction of Dr. Titus H. Harris, professor of neuropsychiatry, and Dr. Jack R. Ewalt, associate professor of neuropsychiatry.

VERMONT

Personal.—Dr. William J. McNamara, Fair Haven, was recently named supreme physician of the Knights of Columbus; he will be located in New Haven, Conn.

University News.—Dr. Otto Loewi, research professor of pharmacology, New York University College of Medicine, delivered the annual Sigma Xi Lecture at the University of Vermont College of Medicine, Burlington, April 28. His subject was "Chemical Mediation of Nerve Impulses." On April 27 Dr. Loewi also addressed the Osler Clinical Society at the college on "Control of Endocrine Secretions." The clinical society was addressed in Burlington, May 25, by Abraham Wikler, P. A. Surg., U. S. Public Health Service Reserve, on "Problems of Drug Addiction." Dr. Louis S. Goodman, professor of pharmacology and physiology at the university, was guest speaker at the Grafton County Medical Society, Wells River, April 26. His subject was "The Advancing Frontiers in Medical Therapeutics." Dr. Philip D. Woodbridge, professor of anesthesia, Temple University School of Medicine, Philadelphia, gave a lecture demonstration to the students and staff of the University of Vermont College of Medicine, Burlington, May 27, on "Problems of Clinical Anesthesia."

WASHINGTON

Society News.—At a meeting of the Walla Walla Valley Medical Society in Walla Walla, May 11, Dr. Charles R. Garrett was chosen president. Dr. Harlan P. Kahler is secretary. Dr. Richard D. Reekie, Spokane, discussed "Water Balance in Pregnancy."

Personal.—Dr. Willis E. Smick has resigned as deputy county health officer of Kittitas. Dr. Percy F. Guy, Seattle, has been named assistant health officer of King County, succeeding Dr. Bryan Newsom, county epidemiologist, who resigned April 1 to enter private practice. It was stated that the position of assistant health officer will include most of the former duties of Dr. Newsom as epidemiologist.

Statewide Mental Program for Rehabilitation of Service Men.—The Washington State Medical Association and the state department of health are planning to inaugurate sometime in August a statewide mental health program for

the rehabilitation of discharged service men not covered by the Veterans Bureau. A committee on mental hygiene has been appointed by the state medical association to act in advisory capacity to the state health department. The plans call for the employment of three teams composed of three each, a psychiatrist, a psychologist and a social worker trained in psychiatry, with possibly one of the teams stationed in eastern Washington and two on the west side. The board of trustees of the state medical association approved the program proposed by the state department of health with the provision that the committee on mental hygiene act in an advisory capacity.

Proposed Medical School.—The board of trustees of the Washington State Medical Association has appointed a committee to study the recommendation to establish a medical school for the University of Washington, Seattle. The committee is to make a report to the house of delegates of the state association. Members of the committee include the following physicians:

David Metheny, Seattle, chairman.
Homer D. Dudley, Seattle, 1st district.
Albert P. Duryee, Everett, 2d district.
Milton P. Graham, Aberdeen, 3d district.
George W. Cornett, Yakima, 4th district.
George H. Anderson, Spokane, 5th district.
Warren B. Penney, Tacoma, 6th district.
Vernon W. Spickard, Seattle, president, state association, ex officio.
Albert J. Bowles, Seattle, secretary, state association, ex officio.
David C. Hall, Seattle, University of Washington Health Department, ex officio.

A subcommittee was also named composed of Drs. Metheny, Dudley, Duryee and Hall. If the regents of the university and the state medical association are agreeable on the establishment of the school, it is believed that the two groups will jointly initiate legislation for the appropriation of funds in the coming session of the state legislature when it meets in January 1945, according to *Northwest Medicine*.

GENERAL

Life Expectancy Gains.—The average length of life in American people had advanced in 1942 to 64.82 years, the highest figure on record, a gain of 15½ years since 1900, according to statisticians of the Metropolitan Life Insurance Company. An announcement from the company points out that a greater proportion of persons now than ever before will live to age 65, the normal retirement age. In fact, it was stated, more than two thirds of persons now between ages 25 and 35 will reach age 65, while almost three fourths now 45 years old and four fifths of the persons now 55 will attain that age. After attaining age 65, the average person can still look forward to living 13.12 years longer.

Voluntary Tests for Medicine.—In Atlanta, Ga., 15 men at the federal penitentiary are ill with malaria in a voluntary test supervised by the National Research Council, U. S. Public Health Service, Army and Navy medical officers, newspapers reported June 11. A group of 15 other prisoners are reporting to the prison laboratory daily for blood tests, it was stated. The men volunteered to act as "guinea pigs" in this study. They will be under observation for eighteen months (THE JOURNAL, March 18, p. 786). Another newspaper report, May 22, states that twenty-six physicians, nurses and students from the University of California Medical School, San Francisco, submitted various forms of torture in the preparation of a "pain map" of the body. It was stated that the project involved the piercing of muscles with sharp instruments and drilling of bones. The subjects not only bore their pain but also gave a running account of their sensations, it was reported.

Industrial Hygiene Groups Choose Officers.—Officers of the National Conference of Governmental Industrial Hygienists chosen at its meeting in St. Louis in May include Mr. Manfred Bowditch, director, division of occupational hygiene, Massachusetts Department of Labor and Industries, Boston, chairman; Dr. Leslie W. Foker, director, division of industrial health, Minnesota Department of Health, Minneapolis, vice chairman, and Senior Sanitary Engineer J. J. Bloomfield, chief, field operations section, industrial hygiene division, U. S. Public Health Service, Bethesda, Md., secretary-treasurer. At a meeting of the American Industrial Hygiene Association also in St. Louis Dr. Robert A. Kehoe, Kettering Laboratory of Applied Physiology, University of Cincinnati College of Medicine, was chosen president-elect and Mr. Bloomfield was inducted into the presidency. Other officers included Edgar C. Barnes, industrial engineer, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., secretary, and John B. Littlefield, industrial hygienist, American Rail Shoe and Foundry Company, Chicago, treasurer.

Society News.—The Biological Photographic Association will hold its fourteenth annual meeting in Binghamton, N. Y., September 7-9, under the presidency of Ferdinand R. Harding, Boston. The association is a nonprofit organization for the study of photography as applied to medicine, dentistry and the biologic and natural sciences. Additional information may be obtained from Anne Shiras, secretary of the association, University Office, Magee Hospital, Pittsburgh 13.—The ninth annual assembly of the International College of Surgeons will be held October 3-5 at the Benjamin Franklin Hotel, Philadelphia. The program will be devoted to war, rehabilitation and civilian surgery. The assembly is sponsored by the United States chapter of the college, of which Dr. Thomas A. Shallow, Philadelphia, is president.—The Association of Military Surgeons of the United States will hold its annual meeting at the Pennsylvania Hotel, New York, November 2-4. Col. Charles M. Walson, M. C., U. S. Army, Headquarters Second Service Command, Governors Island 4, New York, is chairman of the convention and program committees.—The National Medical Association will hold its fiftieth annual convention in St. Louis, August 14-17, as the guest of the Mound City Medical Forum. Dr. John T. Givens, 1108 Church Street, Norfolk, Va., is general secretary of the association.

Meningococcic Meningitis in the United States.—In 1943 the United States experienced the highest incidence of meningococcic meningitis during the thirty years since the public health service began the collection of morbidity data of this disease in 1914, according to *Public Health Reports*. Preliminary reports show that a total of 17,974 was reported by the state health authorities of forty-eight states and the District of Columbia, an incidence of 13.4 per hundred thousand of population. The next highest reported incidence was in 1929, when 10,551 cases were reported in forty-six states and the district, giving an incidence rate of 8.7 per hundred thousand of population. *Public Health Reports* shows that the incidence rate for the country as a whole was 50 per cent higher in 1943 than in 1929, the highest rates being recorded in the New England, Middle Atlantic and Pacific areas. Figures for total deaths from meningococcic meningitis during 1943 were not available at the time of this report, but on the basis of the average of the monthly rates for a 10 per cent sample of death certificates, issued by the Bureau of Census, and the incidence rate the case fatality ratio was 16.4. While not strictly comparable, but probably more nearly complete, the reports for 1943 for thirty-two cities scattered throughout the United States give a case fatality of 18.4 per cent. The ratio for California was 16.9, while for that for New York City was 16. The report indicates that the greater part of the recent reduction in the fatality for meningococcic meningitis is due to the introduction of chemotherapy, emphasis being placed on the effectiveness of sulfonamide therapy.

Grants for Poliomyelitis Research.—Twenty-seven grants totaling \$1,128,770 for work on infantile paralysis were announced June 21 by the National Foundation for Infantile Paralysis. All grants in effect July 1 will strengthen the foundation's program of seeking ways and means of alleviating suffering of victims of the disease and methods emphasizing the search for a preventive or cure. The total appropriations include three long term programs of five years each, two of which, totaling \$495,000, are to improve knowledge in the field of physical medicine. These two grants provide for the establishment of two "units for research in physiology as related to physical medicine," the larger of which will be at the University of Minnesota Medical School, Minneapolis, with a grant of \$320,000. Under a grant for \$175,000 the second unit will be established at Northwestern University Medical School, Chicago, one of the first institutions to adopt a department of physical medicine. The grant will assist the university in expanding its program of scientific investigation and training of investigators and teachers in the field of physical medicine. A third long term grant of \$325,000 will go to the University of Michigan School of Public Health, Ann Arbor, to finance and operate an expanded virus study unit. The work will include a program of field and laboratory investigation of poliomyelitis and other virus diseases, including a study of the disease where it becomes established in a community and the manner in which it spreads and the maintenance of a virus laboratory particularly adapted and available for use by clinicians working with this disease. The program will include a search for a rapid indirect method of recognizing the poliomyelitis virus by use of the high speed centrifuge,

Tiselius apparatus and other biophysical equipment available at the Michigan Department of Health laboratories and with the electron microscope and laboratory facilities at the university, thus obtaining a purified and concentrated virus. It is hoped that in this manner methods may be developed from these purified materials for rapid identification of the virus in diagnosis of the infection. The Michigan project began about three years ago. The enlarged unit will continue to be under the direction of Dr. Thomas Francis Jr., professor of epidemiology and chairman of the department. At the University of Minnesota a unit will be set up for studies in the area of physiologic investigation of the basis for physical medicine procedures applicable to poliomyelitis and other diseases. The problems involved will call for the coordinated activities in the field of neurophysiology and other branches of physiology, biochemistry, pharmacology, neuropathology, neuroanatomy, clinical neurology, pediatrics, orthopedics and physical therapy. The general direction of the proposed investigation will be assigned to a committee consisting of the heads of the departments concerned in the University of Minnesota Medical School. The chairman of the committee will be Dr. Maurice B. Visser, professor and head of the department of physiology. The Northwestern grant will intensify research in basic medical sciences in the varied phases in the field of physical medicine. Under this grant studies will be pursued relative to the use in diagnosis and treatment of electricity, light, heat, cold, exercise, rest and other physical measures. The effects of these forces on nerves and muscles damaged by diseases such as infantile paralysis will make up a major part of the study. While many of the projects have been in operation for the past several years with aid of the national foundation, it now seems advisable to the university to enlarge the scope of the program by including all departments concerned on a cooperative basis, making possible many lines of investigation which otherwise could not be undertaken. The unit will be under the direction of Dr. Andrew C. Ivy, Nathan Smith Davis professor and head of the department of physiology and pharmacology. Of the total of \$1,128,770 the amount allotted for work on "after-effects" is \$536,500, on virus research \$392,400 and on education \$199,870.

Government Services

Allocation of Quinidine

On June 9 the War Production Board amended the order governing allocation of cinchona bark and cinchona alkaloids to permit the delivery of quinidine to an ultimate consumer on the receipt of a prescription signed by a person who is licensed to prescribe drugs. Only physicians licensed to practice medicine were permitted to prescribe quinidine prior to this revision. Quinidine may be used only for the treatment of cardiac disorders, according to the War Production Board.

Senior Specialist in Health Education Named

Lester A. Kirkendall, Ph.D., educational consultant, Venereal Disease Education Institute, Raleigh, N. C., has been temporarily assigned within the Federal Security Agency from the United States Public Health Service to serve as senior specialist in health education in the division of physical education and health activities in the U. S. Office of Education. He will serve schools and colleges in fields given such designations as social hygiene and "human relations."

Distribution of Lanham Funds

The Federal Works Agency has allotted \$2,532,266 of Lanham Act Funds. A total of \$1,865,528 was allotted to nineteen war public works projects in twelve states, with an estimated cost of \$2,566,984. Contributions amounting to \$666,638 were approved for fifteen war public services projects in ten states. Nine of the war public works projects are for nurses' homes and training facilities. Included also are projects for the construction of sewer, school, child care, hospital and recreation facilities. The war public services projects provide assistance in the maintenance and operation of school, child care, recreation, garbage and police facilities.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 27, 1944.

The British Medical Association and the White Paper

In a previous letter (*THE JOURNAL*, March 25, p. 941) the white paper on a national health service, issued by the government, was summarized and the immediate reaction of the British Medical Association was given. The council has now put forward for the consideration of the profession a statement of policy which is intended to be the basis of discussion at meetings of the whole profession. The medical profession is declared to be in complete agreement with the government's aim to ensure that every one shall be able to obtain all the advice and treatment needed in matters of health and that the country's full resources are brought to bear on reducing ill health. The profession, particularly in the last quarter of a century, has again and again pressed on the government developments to this end, but without avail. It is natural that public interest in health should be heightened in time of war, but it is ironic that the government should begin to display a lively interest in organizing medical services at a time when the medical profession and its organizations are almost wholly preoccupied with the problems of war. As a result of recruitment for war service, doctors in civilian practice are heavily overworked. Many of the younger members of the profession who are vitally concerned with these proposals are in the fighting services, and effective consultation with them is difficult. A controversial issue has been raised at a time when the energies of the profession, like those of the whole community, should be directed to one objective—winning the war. There is suspicion that these proposals found their first inspiration in a desire to control an independent profession in order to control certification and thus the disposal of social security funds. The council of the association detects in the white paper a "trend of the times," a move toward planned state control. But the council feels that the state should spare from its bureaucratic intentions a form of human activity which, in an atmosphere of independence and freedom, has made more progress than it could possibly have made under theegis of the state.

The Council makes the following criticisms of details: The proposed central administration is unsatisfactory. The Ministry of Health is left responsible for a number of functions only remotely associated with health. For example, the ministry is left responsible not only for such problems of housing as are clearly related to health but also for supervising the local authorities in actual construction, which is a matter for architects, builders and engineers. Side by side with the Ministry of Health is proposed an advisory body, the Central Health Council, to represent medical practice and teaching, hospital organization and other professional matters. This conforms to the pattern of advisory bodies set up in recent years, of which many have proved useless. They have been façades to protect ministers rather than to advise them. The association cannot accept as an appropriate advisory body to present and effect medical opinion one which is appointed by the minister and which reports only through him. Such a body, as far as its medical members are concerned, should be appointed by the profession. Further, both Parliament and the public are entitled to know what advice has been tendered and whether it has been accepted or not.

At a press conference Dr. H. G. Dain, chairman of the council of the British Medical Association, said that the council had expressed approval of the general principles of the white paper but objected to many of the proposals. The proposed adminis-

trative structure was uncoordinated and chaotic, it was felt. Moreover, no provision was made for the profession to be democratically represented on the advisory bodies or for it to be able to make its advice and views freely known to Parliament and to the public. The voluntary hospitals would in time be submerged, the council feared, which was not in the public interest. Only one type of health center, the communal surgery, was proposed. No provision was made for experiment with other types, such as the diagnostic center. The doctors working in the health centers would be remunerated by salary or similar arrangement; the profession regards this as an attempt to introduce by insidious means a state salaried service, to which it is opposed because it is not prepared to substitute obedience to the state for loyalty to the patient. Remuneration should be related to the amount of work done and not determined by status, it is claimed.

Lord Dawson, president of the British Medical Association, added that there was no disagreement with the principles of a comprehensive health service, which had been advocated by the profession for years. The fundamental fault of the white paper, he said, was that it tried to see too far, to stretch out into the years ahead. At no time was it more difficult than it is now, Lord Dawson stated, to look into the conditions of the future. The program instead should concentrate on what is essential as a foundation; he put first the bringing together of curative and preventive medicine, between which there is a wide gap.

The correspondence columns of the *British Medical Journal* show widespread concern and dissatisfaction with many of the proposals in the white paper. The annual representative meeting of the association will begin on July 18, when the white paper will be the predominant subject for discussion. For this purpose a negotiating committee is to be appointed. It is recommended that this should consist of thirty members, sixteen to represent the British Medical Association, three each the Royal Colleges of Physicians and Surgeons, two the Royal College of Obstetricians and Gynecologists, three the Royal Medical Scottish Corporations, two the Society of Medical Officers of Health and two the Women's Medical Federation.

The Use of Gas Gangrene Antitoxin

The *Army Medical Department Bulletin* points out that the incidence of gas gangrene in the African campaigns of the war has been as high as that in France in the last war and the mortality was a black spot in the otherwise satisfactory recovery rate from wound infections. One of the principal means of improvement is greater use of gas gangrene antitoxin. The conditions that call for injection of prophylactic antitoxin are extensive laceration of muscle, as in compound fracture, obvious contamination of the wound with soil, clothing or other foreign bodies, interference with blood supply (as by tourniquet or tightly packed dressing) and delayed surgical treatment. Wounds of the buttocks and legs are those most frequently associated with the development of gas gangrene, and it must be remembered that small surface wounds may mark the entry of missiles which cause deep, extensive muscle damage, the *Bulletin* points out.

Whenever possible antitoxin should be given intravenously, so that an effective concentration of antibody may be immediately available. If intravenous administration is impossible, antitoxin should be given intramuscularly into healthy tissue. The subcutaneous route should never be used, and there is no advantage in injecting the dose into the region around the wound. For either route the prophylactic dose is the same—the amount of polyvalent antitoxin containing 9,000 units of *Clostridium welchii* antitoxin. This contains other antitoxins against such anaerobes as *Clostridium oedematis maligni* and *Clostridium septicum*. A decision as to whether or not to repeat the prophylactic dose calls for clinical judgment in the light of conditions in the wound and the general picture.

Therapeutic administration is called for urgently at the earliest signs of infection. These may be no more than a feeling of weight in the limb or stump, local pain and swelling, quickening of the pulse or altered mental outlook. In an established case, antitoxin should be given intravenously; when suitable it may be given in intravenous drip with blood, plasma or saline solution. In exceptional circumstances there may be no alternative to intramuscular administration. The initial dose should contain not less than 27,000 units of Cl. welchi antitoxin and needs repetition at intervals of four to six hours according to the condition of the patient. No figure can be given for the total dosage which may be necessary to neutralize the toxemia. Successful chemotherapy with penicillin, sulfonamides or other drugs does not lessen the need for large doses of antitoxin. The risk of severe allergic reactions is no greater than from any other antitoxin and is almost negligible if refined (pepsin treated) antitoxin is used. But, as with all antitoxins, epinephrine should be at hand for injection in case of reaction, the article concludes.

BRAZIL

(From Our Regular Correspondent)

May 10, 1944.

Cultivation of Cinchona in Brazil

The Division of Vegetal Production of the Department of Agriculture has just published a monograph by the agricultural technologist A. Caminha Filho reviewing all the attempts to cultivate the cinchonas in Brazil since the first experiments in 1868, in the high plateau of Teresopolis, under the patronage of the late emperor Pedro II until the present large scale attempts in the state of São Paulo under the direction of Luiz A. Nucci, agricultural technologist. In spite of the fact that this is where the cinchona plants originated, South America depends on importation for all the quinine it needs. In Brazil, where a large campaign against malaria is now developing, cultivation of the cinchonas is a problem of the utmost importance. As Mr. Caminha Filho points out, the agricultural exploitation of the plant should be studied and begun at once and increased as rapidly as possible. For this purpose he suggests the creation of a specialized service in the Division of Vegetal Production with the cooperation of the Institute of Agricultural Experimentation. According to the biology of the plant, the monograph suggests as convenient places for the initial culture the National Park of Itatiaia, the National Park of the Orgãos Mountain and the high plateau of Friburgo. According to the author, the initial plantations should include a total of at least 800 acres.

Pollen Allergy

In a previous letter (*THE JOURNAL*, Jan. 23, 1943) reporting the work of Dr. Ernesto Mendes of São Paulo, it was pointed out that allergic conditions with such a seasonal character that one could assume pollens to be their cause are not found in Brazil. Dr. Mendes believes that the extremely low incidence of pollen allergy is due to environment rather than to individual peculiarities, as potent allergenic plants are few in this country and meteorologic conditions do not favor high concentrations of pollen in the air. The pollens of potent allergenic plants were found to be fewer than 15 per cubic centimeter at that time. Since then new studies have been undertaken and several papers have been published that cast more light on this problem. Among these studies the most important are those carried out by Dr. A. Oliveira Lima of Rio de Janeiro and Dr. J. B. Greco of Bello Horizonte, state of Minas Geraes. They claim that the rarity of pollinosis in Brazil is explained by several causes, among them the scant interest of physicians in this subject and errors of diagnosis. (Many cases of seasonal pollen rhinopathy are simply labeled common colds.) Another factor is the predisposition typified by the low sensitivity of Brazilians

to the pollen of *Lithrea moleoides*. A large number of American patients sensitive to *Rhus toxicodendron*, as reported in a letter from Shelmire to Oliveira Lima, were also sensitive to the toxiallergenic fraction of the Brazilian *Lithrea*. Greco reports results obtained by him and by Oliveira Lima in sixteen Brazilian cities in the east central section of the country, including Rio de Janeiro, Campinas in the state of São Paulo, Salvador in the state of Bahia and thirteen others in the state of Minas Geraes. He reports the existence of a short, typical pollen season from the middle of May to the middle of June (autumn in the Southern Hemisphere). The only important plants of allergenic activity pertain to the gramineous family, particularly the fatty grass *Melinis minutiflora*.

Brief Items

Dr. C. E. Turner of the Massachusetts Institute of Technology and a staff member of the Division of Health and Sanitation of the Office of the Coordinator of Inter-American Affairs has spent several days in Rio de Janeiro visiting the services of health education. He delivered an address at a special meeting of the Brazilian Society of Hygiene and was entertained by this association during his stay in the city.

Dr. J. Caiado de Castro of Rio de Janeiro died a few days ago at the age of 37. Dr. de Castro was an able surgeon and laryngologist who had a notable record in the field of bronchoscopy and esophagoscopy and in the extraction of foreign bodies from the esophagus, the trachea and the bronchi. His death was deeply felt by his colleagues of the Department of Hospitals of the city of Rio de Janeiro, where, in the exercise of his activity, he had performed more than 5,000 tonsillectomies and more than 2,000 extractions of foreign bodies from the respiratory and digestive tracts.

Dr. Armando Tavares, professor of medicine at the medical school of Salvador, state of Bahia, died at the age of 50. Dr. Tavares was one of the leading specialists in tuberculosis, in which field he had published several important contributions.

Dr. Charles Philippe Leblond of McGill University has spent a few days in Rio de Janeiro. He read a paper on "The Iodine in the Thyroid" in which he brought into focus, in particular, the transformations undergone by this substance as shown by radioactive iodine.

A cablegram from Lima, Peru, reports the good results of the use of penicillin prepared at the Instituto Oswaldo Cruz of Rio de Janeiro and sent by air mail through the Brazilian embassy at Lima for the treatment of a desperate case of septicemia.

Dr. Erasmo Gaertner, professor of surgery at the medical school of Curitiba, state of Paraná, spent a few days at Rio de Janeiro to visit some important medical institutions of the city. Specially invited by the medical board of the Misericórdia Hospital, Dr. Gaertner read a paper, with demonstrations, on the surgical treatment of aneurysms.

Marriages

EDWIN A. HENDRY, Portland, Ore., to Miss Gladys H. Scott of North Bennington, Vt., in New York, February 19.

JOSEPH M. COPPOLETTA, Cliffside Park, N. J., to Miss Dorothea M. Ellis Carousis in New York, June 11.

RICHARD ELI HEDRICK, Winston-Salem, N. C., to Miss Carol Clinton Reid of Columbia, S. C., June 6.

JOHN WELDON WILLIAMS JR. to Miss Laura Ruth Veal, both of Augusta, Ga., May 20.

EDWARD B. McCABE, Carbondale, Pa., to Miss Mary M. Hunt of Archbald, May 20.

RUSSELL W. BERNHARD to DR. ELIZABETH THORNTON, both of San Francisco, June 11.

Deaths

Henry James Spencer * New York; Columbia University College of Physicians and Surgeons, New York, 1913; formerly associate professor of clinical medicine at Cornell University Medical College; diplomate of the National Board of Medical Examiners, of which he had been past president; specialist certified by the American Board of Internal Medicine; fellow of the New York Academy of Medicine, associate member of the Harvey Society, fellow of the American Association for the Advancement of Science; member of the American Heart Association, New York Tuberculosis and Health Association and the American Institute of Nutrition; assistant attending physician to the Hudson Street Branch of the New York Hospital from 1917 to 1919; served as assistant attending physician, attending physician, president of the medical board and consulting physician at the Willard Parker Hospital; associate attending physician, New York Hospital; visiting physician and director, second medical division, Bellevue Hospital; associate visiting consultant in medicine at the Children's Hospital, Randall's Island, from 1920 to 1928; formerly on the staff of the Lincoln Hospital; organizer and chief, department of metabolic diseases, Cornell Clinic, from 1921 to 1931; contract surgeon attached to the Second Service Army Command; died June 11, aged 60.

Erasmus Darwin Fenner * New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1892; professor of orthopedics and surgical diseases of children, emeritus, at his alma mater; he joined the teaching staff in 1893, serving as associate professor of the diseases of children from 1903 to 1907, when he became head of a newly created department of orthopedics; resigned from this position in 1927; past president of the Orleans Parish Medical Society; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; specialist certified by the American Board of Orthopaedic Surgery, Inc.; captain, medical reserve corps, U. S. Army, June 15, 1917; assigned to duty with Base Hospital number 24, Aug. 31, 1917; liaison officer, 12th Region, June 1918-January 1919; major in the medical corps Nov. 9, 1918; honorably discharged April 24, 1919; decorated Officer d'Académie by French government; in 1942 honored at ceremonies at the Charity Hospital and given a silver cup for his fifty years of untiring service to the institution; chief, independent division of orthopedics and fractures and senior visiting surgeon at the hospital; consultant in orthopedics at the Mercy Hospital-Soniat Memorial; died June 7, aged 75.

David I. Wolfstein, Cincinnati; Medical College of Ohio, Cincinnati, 1888; professor emeritus of psychiatry at the University of Cincinnati College of Medicine, where he had been a member of the board of trustees from 1912 to 1921; formerly professor of pathology at his alma mater; member of the American Neurological Association; served on the staffs of the Cincinnati General and Jewish hospitals, Cincinnati, and the Speer's Memorial Hospital, Dayton, Ky.; instrumental in building the new Cincinnati General Hospital; active in the establishment of the modern board of health and in the campaign for pure milk; in 1898 received the Fiske Fund prize for his essay on "Relation of the Neuron Theory to Diseases of the Nervous System"; a member of the House of Delegates of the American Medical Association in 1905; formerly president of the City Club; died June 7, aged 82, of congestive cardiac failure and arterial disease.

Herman Sinclair Judd, Fort Steilacoom, Wash.; Rush Medical College, Chicago, 1895; member of the Washington State Medical Association; served in the medical corps of the U. S. Army during World War I; at one time surgeon for the Homestake Mining Company at Lead, S. D.; served for five years with the U. S. Veterans Bureau, for a time with the Cushman Hospital, Tacoma, and as acting clinical director of the U. S. Veterans Hospital, Palo Alto, Calif.; formerly city director of health of Tacoma and superintendent of the Tacoma Contagious Hospital; for three months relieved the health commissioner of Alaska; in 1933 appointed surgeon in the Indian Service, U. S. Department of Interior, Prince of Wales Island, Alaska; since 1934 on the staff of the Western State Hospital, where he had been on the staff from 1919 to 1921; died April 19, aged 71, following a prostatectomy.

Jacob F. Burkholder * Chicago; Western University Faculty of Medicine, London, Ont., Canada, 1892; formerly president, professor and head of the department of anatomy, and professor of biology and ophthalmology, Reliance Medical College; at one time president and treasurer, board of directors, professor and head of the department of anatomy, Illinois Medical College; served as junior dean, professor of ophthalmology

and head of the department at Bennett Medical College of Chicago, Medical Department of Loyola University; formerly professor of anatomy at the Chicago Eye, Ear, Nose and Throat College and professor of physiology in the University of Illinois College of Dentistry; author of "Anatomy of the Brain"; died June 7, aged 82, of myocarditis with dilatation.

Hugh Jameson * Titusville, Pa.; University of Edinburgh Faculty of Medicine, Edinburgh, Scotland, 1889; fellow of the American College of Surgeons; examiner for the draft board during World War I; served as member and for many years president of the board of health; a member of the City Council and a member of the school board; a member of the surgical staff and for many years president of the Titusville Hospital; served as a director of the Y. M. C. A. and the chamber of commerce; a member and past president of the Rotary Club; since 1924 surgeon for the Pennsylvania Railroad; died April 20, aged 77, of chronic valvular heart disease.

William Kress McIntyre * St. Louis; St. Louis University school of Medicine, 1923; specialist certified by the American Board of Surgery; member of the American Proctologic Society and fellow of the American College of Surgeons; assistant in surgery at his alma mater from 1928 to 1938, when he became instructor and since 1941 had been senior instructor in surgery; assistant surgeon, St. Mary's Group of Hospitals, and St. Anthony's Hospital; on the surgical staff, De Paul Hospital; proctologist, Isolation Hospital, City Sanitarium and City Infirmary; proctologist, St. Louis County Infirmary, Clayton; died April 29, aged 47, of lymphosarcoma.

August Edward Witzel, Newark, N. Y.; Syracuse University College of Medicine, 1916; member of the Medical Society of the State of New York; fellow of the American Psychiatric Association; formerly senior assistant physician at the Utica State Hospital, Utica; served as director of clinical psychiatry and assistant physician at the Brooklyn State Hospital; on July 1, 1940 became acting medical inspector for the state department of mental hygiene and held that post until Oct. 1, 1940, when he was appointed medical superintendent of the Newark State School; died May 15, aged 53, of coronary thrombosis.

Arthur A. Stevens * Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1886; formerly professor of applied therapeutics at his alma mater and professor of materia medica, therapeutics and clinical medicine at the Woman's Medical College of Pennsylvania; served on the staffs of the Episcopal, Philadelphia General and St. Agnes hospitals; author of "A Text-Book of Therapeutics," "A Manual of the Practice of Medicine" and "The Practice of Medicine"; co-author with Florence A. Ambler of "A Textbook of Medical Diseases for Nurses"; died June 10, aged 79, of coronary thrombosis.

William Daniel Snively * Rock Island, Ill.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; past president of the Rock Island County Medical Society; served as treasurer of the Illinois-Iowa Central District Medical Association; examiner for the draft board during World War I and II; a member of the staff, and for many years instructor of obstetrics in the school for nurses, St. Anthony's Hospital; on the staffs of the Public Hospital and the Lutheran Hospital, Moline, where he died April 5, aged 71, of carcinoma of the stomach.

C. A. Barron, Kingsland, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; died April 24, aged 57, of heart disease.

George William Belting, Orfordville, Wis.; Northwestern University Medical School, Chicago, 1909; member of the State Medical Society of Wisconsin; past president of the Rock County Medical Society; died April 17, aged 65, of cerebral hemorrhage.

Walter Griswold Bisbee, Bristow, Okla.; Dartmouth Medical School, Hanover, N. H., 1901; member of the Oklahoma State Medical Association; served as secretary of the Creek County Medical Society; a captain in the medical corps of the U. S. Army during World War I; on the staff of the Cowart-Sisler Hospital; a member of the Rotary Club; died March 17, aged 67, of angina pectoris.

Joseph F. Bowen, Rushville, Ind.; Medical College of Indiana, Indianapolis, 1897; member of the Indiana State Medical Association; past president of the Rush County Medical Society; on the staff of the Henry County Hospital, New Castle, and formerly on the staff of the City Hospital; died April 21, aged 73, of cerebral hemorrhage.

George Thomas Brinkley * Whiteville, Tenn.; Memphis Hospital Medical College, 1902; past president of the Fayette-Hardeman Counties Medical Society; city health officer; a director of the Whiteville Savings Bank; died April 10, aged 68, of coronary occlusion.

George Newton Bussey ☉ Chicago; Rush Medical College, Chicago, 1893; fellow of the American College of Surgeons; co-founder and on the staff of the Ravenswood Hospital, where he died May 1, aged 78, of myocardial failure, chronic arteriosclerotic myocarditis and chronic pyelonephritis.

George Beresford Caulfield, Bangor, Maine; Tufts College Medical School, Boston, 1898; died April 4, aged 79, of heart disease.

Leon Cherurg, New York; University of Dorpat Faculty of Medicine, Russia, 1884; Eclectic Medical College of the City of New York, 1889; died in the Columbus Hospital April 18, aged 82, of arteriosclerotic heart disease and decompensation.

Albert Briton Clark, Swartz Creek, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1889; served during World War I; formerly affiliated with the Hurley and St. Joseph hospitals, Flint; died April 17, aged 78, of carcinoma.

Mildred Naomi Johnson Clark, Omaha; University of Nebraska College of Medicine, Omaha, 1925; clinical assistant in obstetrics at her alma mater; on the staffs of the Bishop Clarkson Memorial and the University of Nebraska hospitals; in 1938 president of the Omaha chapter of the American Medical Women's Association; for many years physician for the Juvenile Court; physician for the Maternal Health League and trustee of the Nebraska Crippled Children's Society; died April 3, aged 44, of coronary thrombosis.

John Gerard De Bey ☉ Orange City, Iowa; Drake University College of Medicine, Des Moines, 1910; died April 17, aged 60, of heart disease.

Robert Edward De Witt, Abilene, Texas; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1899; member of the State Medical Association of Texas, served as director of the Delta County Health Unit; for a short period assistant superintendent of the Austin State School, Austin; since October 1943 director of the Abilene-Taylor County Health Unit; died April 2, aged 64, of coronary occlusion.

Benjamin Matthew Domser ☉ Syracuse, N. Y.; Syracuse University College of Medicine, 1910; on the staffs of the Hospital of the Good Shepherd, Syracuse University and St. Mary's Maternity Hospital; died April 26, aged 67, of cerebral hemorrhage.

John Adams Drake Jr., Monroe, Va.; Medical College of Virginia, Richmond, 1903; died in the Lynchburg General Hospital, Lynchburg, April 14, aged 62, of bronchopneumonia and carcinoma of the larynx with pulmonary metastasis.

Robert J. Ferguson, New Haven, Conn.; Hahnemann Medical College and Hospital of Philadelphia, 1899; member of the Connecticut State Medical Society and the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; a member of the consulting staff at Grace Hospital; died in the Flower and Fifth Avenue Hospital, New York, May 15, aged 72, of carcinoma of the cecum with metastasis.

David Henry Galloway, Roswell, N. M.; College of Physicians and Surgeons of Chicago, 1893; on the staff of St. Mary's Hospital; died March 30, aged 85, of chronic myocarditis.

Robert Hunter Garthright, Vinton, Va.; Medical College of Virginia, Richmond, 1885; member of the Medical Society of Virginia; died May 2, aged 86, of cerebral thrombosis.

Edward Francis Gleason, Hyannis, Mass.; University of Vermont College of Medicine, Burlington, 1899; member of the Massachusetts Medical Society; one of the first members of the staff at Cape Cod Hospital; died April 9, aged 75.

Warren Francis Greene, Erie, Pa.; University of Buffalo School of Medicine, 1941; member of the Medical Society of the State of Pennsylvania; diplomate of the National Board of Medical Examiners; first lieutenant in the medical reserve corps, U. S. Army, not on active duty; on the staff of St. Vincent's Hospital, where he died April 24, aged 29, of leukemia.

George Albert Hass, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; served during World War I; died April 16, aged 56, of cerebral thrombosis, arteriosclerosis and cirrhosis of the liver.

Alonzo Albert Holdbrooks, New York; Howard University College of Medicine, Washington, D. C., 1915; died April 19, aged 61, of burns received when his home caught fire.

Albert Clare Holley, Attica, Ind.; the Hahnemann Medical College and Hospital, Chicago, 1896; member of the Indiana State Medical Association; died in the Maris Hospital, Williamsport, April 26, aged 71, of pernicious anemia.

Nehemiah Janko ☉ New York; Baltimore University School of Medicine, 1898; an Affiliate Fellow of the American Medical Association; died April 13, aged 71, of heart disease.

Clyde White Jones, West Blocton, Ala.; University of Alabama School of Medicine, 1912; member of the Medical Association of the State of Alabama; died April 9, aged 55, of acute myocarditis, coronary thrombosis and decompensation.

William Anthony King, Pittsburgh; Temple University School of Medicine, Philadelphia, 1927; member of the Medical Society of the State of Pennsylvania; served on the staff of the Western Pennsylvania Hospital; died April 25, aged 47, of coronary occlusion.

Charles John Laserte ☉ Leominster, Mass.; Baltimore Medical College, 1905; chief of medical staff, Leominster Hospital; died April 14, aged 63, of coronary thrombosis.

Michael William Lash ☉ Detroit; Wayne University College of Medicine, Detroit, 1938; served a residency in urology at the Chenik Hospital and one in surgery at the Providence Hospital, where he died April 8, aged 30, of virus bronchopneumonia.

William Joseph Powers, Holyoke, Mass.; Baltimore Medical College, 1902; died February 6, aged 64.

Benjamin Spottswood Preston, Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1902; also a pharmacist; member of the West Virginia State Medical Association; served as medical director for the Hillcrest Sanatorium; formerly chief of staff of the Charleston General Hospital; member of the Rotary Club; died at Lewisburg, April 19, aged 70, of cerebral hemorrhage.

Henry James Profant ☉ Santa Barbara, Calif.; Rush Medical College, Chicago, 1920; diplomate of the National Board of Medical Examiners; specialist certified by the American Board of Otolaryngology; member of the American Laryngological, Rhinological and Otolological Society; fellow of the American College of Surgeons; member of the staffs of the Santa Barbara Cottage, Santa Barbara General and St. Francis hospitals; died April 29, aged 51, of ruptured left ventricle.

Marion Roman Siudzinski, ☉ Brooklyn; Long Island College Hospital, Brooklyn, 1914; served during World War I; assistant roentgenologist on the staff of St. Catherine's Hospital; died May 6, aged 53, of cerebral hemorrhage.

Charles D. Stratton ☉ Rothville, Mo.; Missouri Medical College, St. Louis, 1883; past president of the Chariton County Medical Society; died April 5, aged 85, of bronchopneumonia.

Arthur Deming Whiting, St. Cloud, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1895; died March 19, aged 71, of coronary thrombosis due to hypertension.

Dayton Henry Clinton Wilson, Philadelphia; Temple University School of Medicine, Philadelphia, 1921; died in the Graduate Hospital March 20, aged 52, of myocardial failure, hypertension and cardiorenal disease.

KILLED IN ACTION

Edward Draper Curtin, San Bernardino, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1941; served an internship at the Los Angeles County Hospital, Los Angeles; prior to the time when he was commissioned in the U. S. Navy he served as surgeon in the Douglas Aircraft Company in Iran, where he was stationed for fifteen months, and later in Eritrea; lieutenant (jg), medical corps, U. S. Naval Reserve; awarded Purple Heart posthumously on April 24; died in the Pacific area March 27, aged 28, of multiple wounds.



LIEUT. (JG) EDWARD D. CURTIN,
(MC), U.S.N.R., 1915-1944

Correspondence

PRESCRIPTION WRITING

To the Editor:—The significance of Dr. Kretschmer's article (*THE JOURNAL*, June 3, p. 326) will be obvious to many physicians.

In my book on Pharmacology and Therapeutics I wrote: For three obvious reasons the writing of prescriptions is the dread of the young medical practitioner. These reasons are (1) fear that he may not express his desires correctly, (2) distrust in his ability to make satisfactory combinations or palatable mixtures, (3) anxiety lest a faulty construction should make him the subject of the pharmacist's criticisms.

If a physician cannot write, or is afraid to write, for what he wants he has no recourse but ready made formulas.

Four classes of teachers might be called on to teach prescription writing: pharmacologists, clinical teachers, pharmacists and physicians who have graduated in pharmacy.

Pharmacologists: As Dr. Kretschmer ascertained, of the teachers of pharmacology responsible for teaching prescription writing 58 of 146 do not hold a medical degree, and of the 88 who are M.D.'s only 43 have practiced medicine. How can these appreciate the importance of simplicity combined with correctness in constructing prescriptions to the doctor who sees many patients a day and whose livelihood depends on his success in treating them? Besides pharmacology, prescription writing involves a knowledge of flavors, vehicles and ointment bases, and to a research pharmacologist these are boring details. These might say that teaching prescriptions is something thrust upon them. There is no glory or intellectual stimulation in teaching prescription writing.

Clinical Teachers: As Dr. Kretschmer intimates, these give no time to intensive study of treatment. How often the hospital therapeutics is left largely to the interns! There is certainly no effort made by clinical teachers to teach the student how to write prescriptions, perhaps at times because they have little confidence in their own prescription writing technic.

Pharmacist Teachers: These invariably, I find, recommend complex mixtures for everything, whereas what should be taught the student is the simplest way of prescribing for what he wants. If, of any given drug, capsules or tablets are satisfactory, there is no need to learn how to make up this drug in a liquid form with added syrups, elixirs or flavored solvents. Pharmacists also dwell on incompatibilities, which are really matters of minor import.

Pharmacist Physicians: In my experience the one who writes the best prescription is the man who has graduated in pharmacy and is now a practicing physician.

It would seem as if prescription writing should be taught only when the student is learning clinical medicine and therapeutics, and that means the third or fourth year of his medical course. If taught in the pharmacology course the student does not perceive its practical value, and he is still several years from practicing medicine. Thus, as he passes through the hands of his clinical teachers and subsequently in the hospital prescribes by the use of formulary numbers, he may readily unlearn what he has been taught.

The answer is that the American Medical Association must publish a brochure on prescription writing, not full of rules but merely listing each drug and showing how to prescribe it. It could well be a companion to *Useful Drugs* and might be used not merely by the practitioner but also in the courses on prescription writing.

At a meeting of the deans of a certain noted university, the medical dean, who had abolished the department of therapeutics, was asked "If you do not teach therapeutics in your school how are your graduates going to prescribe for sick people?" He replied "Oh, they pick that up in a year or two." The inquirer

said "Yes, they pick it up from the detail men." In my consultations in towns adjoining New York a common query of the local physician is "Why don't you teach more therapeutics in your medical school?"

NOTE.—The first illustration by Dr. Kretschmer is unfortunate. I should say that a powerful remedy like tincture of nux vomica should never be prescribed by itself. It involves the use of "drops" as dosage, and these vary greatly in size and should not be employed as a dose measure. I saw a woman with typical strychnine poisoning brought on by two or three doses from a bottle of tincture of nux vomica which had become concentrated because the cork had fallen out.

WALTER A. BASTEDO, M.D., New York.

"THE TEACHING OF DRUG THERAPY"

To the Editor:—The article by Dr. H. L. Kretschmer on "The Teaching of Drug Therapy" (*THE JOURNAL*, June 3, p. 326) calls attention again to the fact that the old problem of teaching prescription writing is by no means settled. Of course it is true that pharmacology is the basis for therapeutics, but pharmacology may also be applied to the diagnosis and prevention of disease as well as to the cure of disease and the alleviation of the symptoms of disease.

Pharmacology as a science is the study of the action of chemicals on living things. It is largely a matter of tradition that prescription writing is taught as part of the course in pharmacology. This is unfortunate in many ways. It puts the teacher of pharmacology to a considerable disadvantage, since he rarely has the opportunity for supervising practice in prescription writing on patients.

It would seem that the principles of prescription writing might be taught didactically as part of pharmacology, with practice prescriptions offered regularly through the course in pharmacology in connection with the drugs being studied. Actual practice in prescription writing, however, would seem to be properly a part of clinical medicine. The place to learn how to write prescriptions is at the bedside of the patient under the guidance of a competent clinician.

It is imperative that during instruction in pharmacology full opportunity be taken to acquaint the student with the purposes of the Pharmacopeia and the objectives of the Council on Pharmacy and Chemistry of the American Medical Association, so as to reduce to a minimum the exploitation of the physician's ignorance of drugs by detail men and pharmaceutical houses. On the other hand, it is equally necessary that clinicians maintain a scientific interest in drugs and that they attempt to use them in a scientific manner. It is wise for clinical instructors to use the United States Pharmacopeia and the National Formulary as well as New and Nonofficial Remedies in connection with their teaching efforts in therapeutics. It is also wise for the teaching hospital to devise a guide to prescription writing and an index of "useful drugs." This index might be utilized as an inventory for the drug room of the hospital. If a competent hospital committee should prepare such a hospital formulary, it might result in keeping out of the hospital wards unsatisfactory proprietary drugs. Such a formulary might also help the clinical staff to give effective teaching in practical prescription writing.

It is the responsibility of the pharmacologist to teach how chemicals act on living things and how this knowledge may be utilized in medicine. It is also the responsibility of the pharmacologist to give instruction in the kind of drugs to use and how to prescribe them. However, it is the responsibility of the clinician to supervise practical training in prescription writing.

CHAUNCEY D. LEAKE, PH.D., Galveston, Texas.
Dean, University of Texas School of Medicine.

MEDICAL PARASITOLOGY AND
AND ZOOLOGY

To the Editor:—The recent review of my textbook *Medical Parasitology and Zoology* in *THE JOURNAL*, April 8, page 1091, challenges a reply. In paragraph 3 the completeness of the glossary is questioned by the reviewer, who evidently overlooked the needs of the student for such aid in an elementary textbook of this subject. For a similar reason subdivision of the bibliography into that derived from the text and that available generally was deemed quite desirable and helpful to users of the volume.

The allegations of "inaccuracies or inconsistencies of thought or statement" in paragraph 4 of the review are misleading: 1. Craig (1934, p. 132) in describing amebic dysentery mentions repeatedly the presence of blood and mucus in the stools of patients. On page 25 of my textbook I have referred to this condition as a "bloody mucoid diarrhea" for sake of brevity in order to emphasize the contrast between this and the more inclusive condition implied by the term amebiasis. 2 and 3. Chiniofon, anayodin and yatren are not considered as different agents, as the context plainly shows: "It (emetine) should be followed by amebicidal drugs such as the halogen quinoline derivatives—chiniofon, anayodin, yatren, and vioform or carbarsone (an arsenical)." Criticism of the manner in which the administration of these drugs is expressed seems almost too trivial to be worthy of notice. 4. Diodoquin, it is true, should have been mentioned, although it has not yet been widely accepted. Emetine bismuth iodide, however, had been for some years a popular amebicide in Great Britain, but its merits have not been so well recognized here. 5 and 6. Surely the reviewer does not mean to ignore the probable role of exinfestation in transmission of *Enterobius vermicularis* as correctly depicted in figure 31 (p. 139) nor object seriously to classifying *Echinococcus granulosus* and *Hymenolepis nana* as food infesting worms (pp. 201, 206; figs. 54, 56). In case of *E. granulosus* the reviewer evidently would overlook entirely the importance of certain domestic animals in perpetuating and transmitting this species. Associations of the common roundworms in general with soil pollution and flatworms with food infestations or infection is sufficiently accurate to justify their employment pedagogically. Since the life cycle constitutes a basic groundwork for each parasitic worm studied, introducing the idea of environmental relationships at the beginning has distinct advantages. Such a method coordinated with analogous groupings and simplifications in descriptions has been found to assist the student greatly in comprehending the essential features of the principal worms considered. These points seem to be overlooked by most authors of textbooks on parasitology. 7. Sporadic typhus, as described by Brill, has generally been considered murine in origin, although opinions differ as to its exact etiologic relationships.

Now regarding paragraphs 5, 6 and 7 of this review, the critic adds more unimportant remarks and indulges somewhat in generalities. In paragraph 5 he frowns on use of the title *Taenias saginata* and *solium* as a caption covering a brief, combined discussion of these closely related flatworms; he objects to the use of the umlaut u in *Wüchereria*, although it is so employed in various editions of Manson's *Tropical Diseases*; he condemns in one statement part III on arthropods and disease without citing one specific instance. He does pause long enough, however, to praise the new color plate (fig. 22) on malaria parasites.

In paragraph 8 the reviewer admits the unquestioned value of *Medical Parasitology and Zoology* but at the same time offers the dubious advice of supplying the student with a series of mimeographed sheets pointing out the more "serious" errors.

RALPH W. NAUSS, M.D., DR.P.H., New York.

[The letter was sent to the reviewer, who replies:]

To the Editor:—I do not believe that it will be helpful or necessary to consider item by item the points which Dr. Nauss refers to in his letter. I checked all of the points carefully before writing the review and then revised so that there could be no possibility of error in statements included in the review. One of the unfortunate tendencies today in medical writing, perhaps borrowed from newspapers which print only partial truths, is to consider that numerous minor inaccuracies are of little or no consequence. I believe the medical writer owes his physician-reader and medical student the most accurate information available, also the most up to date information. It is on the basis of this thesis that my review was written.

Although I did not make specific statements to this effect, I was much concerned about the recommendations which Dr. Nauss made on the treatment of certain infections considered, since I recognized that he was leaning heavily on Manson-Bahr and was not keeping up with the best American trends. Likewise I did not specifically criticize the numerous diagrammatic illustrations borrowed from Dr. Pedro Kouri, although in 2 or 3 instances I referred to their inaccuracies. A pictorial diagram is one of the best methods of presenting a life cycle of a pathogen and its epidemiology. By the same token, as the diagram is inaccurate the information presented is considerably more damaging than if it had been presented in words.

I realize that Dr. Nauss was sincere in his attempt to provide a useful textbook for medical students. I know that he spent several years in getting the material together. During this period some of the points which I criticized were modified by new knowledge. In other instances Dr. Nauss had failed to understand the need for accurate nomenclature.

INTRAUTERINE PASTES

To the Editor:—The article by Dr. R. W. Weilerstein in *THE JOURNAL*, May 20, reminds me of a fatal case that occurred forty-eight hours after the intrauterine application of an "interruptin" paste containing iodine and fatty substances. I had the chance to perform the medicolegal autopsy of this case together with Dr. Karl Reuter in Breslau (Germany) on July 29, 1931. A brief account of the findings is given by Reuter in the *Medizinische Klinik* 28:1339 (Sept. 23) 1932. The intrauterine application of the paste was made by a physician for interruption of an early pregnancy in a woman 25 years old who had threatened to commit suicide in a stage of reactive depression. The ovum with the placenta was expelled but then a severe dyspnea developed which made the transfer to a general hospital necessary. She died forty-eight hours after the "treatment" had started, with the signs of edema of the lungs. The gross necropsy findings were not striking. There were a few subconjunctival and subendocardial ecchymoses and a severe edema of both lungs. The lungs were heavy, the weight of the left 670 Gm. and of the right 700 Gm. The uterus contained a number of blood clots but no remnants of fetal tissue, and the endometrium did not show any signs of necrosis. In the right ovary there was a corpus luteum verum graviditatis. The microscopic examination revealed as the cause of death an extensive fat embolism of the lungs. All capillaries of the lungs were filled with fat emboli, causing obstruction of the pulmonary circulation. The fat had even passed into the general circulation, where fat emboli were found in all organs, especially the liver, kidneys, thyroid and brain. This fact was interesting because the foramen ovale was closed. The paste had dissolved in the uterus and the fat had penetrated into the uterine capillaries and veins, where it was found at the microscopic examination of the uterus wall; then it had passed into the right heart, the pulmonary arteries and capillaries, obstructing their lumen.

GEORGE STRASSMANN, M.D., Waltham, Mass.
Pathologist, Metropolitan State Hospital.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, June 24, page 593.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various centers, Oct. 16. Candidates in military service may take examination at their place of duty. Final date for filing application is August 15. Asst. Sec., Dr. W. A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 5-7. Sec., Dr. S. Judd Beach, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and Written.* Part I. Chicago, Oct. 13-14. New Orleans, Sept. 29-30. New York, Oct. 6-7. San Francisco, Oct. 20-21. Final date for filing application is August 1. Sec., Dr. G. A. Caldwell, 3503 Prytania St., New Orleans.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 4-7. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Sept. 22. *Oral.* St. Louis, Nov. 8-9, New York, Dec. 15-16. Final date for filing application is Aug. 15. Sec., Dr. C. A. Aldrich, 115½ First Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Part I. Various centers, October 25. Final date for filing application is August 15. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Necessity for Expert Testimony as to Physicians' Alleged Negligence.—Hull was seriously injured Sept. 12, 1940 by an explosion in a powder plant that killed over fifty persons and injured many more. He was taken to Dover (New Jersey) Hospital where he was attended by the defendant physician Costello. The defendant physician Plume from time to time took roentgenograms of the patient and on occasion "saw" the patient and consulted with other physicians concerning his condition. On the patient's admission to the hospital the following diagnosis was made: "general lacerations, particularly a severe laceration of the back in the lumbar area, probable injury to spinal cord and nerve system, as evidenced by diminished sensation and paralysis in both legs, shock, and poor general condition, with a very poor prognosis for continuance of life beyond six months." Subsequent diagnosis following the taking of roentgenograms was "fractures of the vertebrae with a displacement of one of the lumbar vertebra, and it showed a foreign body in the boy's back." Apparently, however, there were a number of foreign substances in the patient's body. Dr. Reading, who was called into consultation by the family on Jan. 17, 1941 found that "a prognosis in this case under any circumstances, as far as life is concerned, appears poor." The patient died March 14, 1941, within two days of the six months originally predicted as the probable maximum of life. Subsequently the patient's father, as administrator of his estate, instituted an action against the defendant physicians Costello and Plume, claiming that the death of the patient notwithstanding the serious nature of the injuries received in the explosion was actually caused as the result of the negligent treatment rendered by the defendants. At the conclusion of the evidence presented by the administrator, the trial court directed a verdict in favor of the physicians "because there was no professional or expert testimony upon the question of negligence." The administrator then appealed to the Court of Errors and Appeals of New Jersey.

The crucial question in this case, said the court, is whether the defendant physicians were negligent in the treatment administered, and, if negligent at all, whether such negligence had any causal relation to the patient's death. The administrator contended that while as a general rule those questions could only be determined on the basis of the testimony of medical expert witnesses "where the acts of the defendant physicians are so manifestly and clearly negligent and improper that they can be

recognized as such by the ordinary layman, no expert medical testimony is required." The court, however, did not believe that that exception to the general rule was applicable to the present case. The alleged negligence of the physicians, according to the administrator, consisted of

leaving a large piece of metal in a soiled contused wound for four months and then removing it, and in failing to remove soiled and infectious tissue from the edge of a wound of the size and appearance of the one in question; and in failing to investigate or remedy the presence of urine in an open wound, the same being infectious, the transfusion of blood on only six occasions in four months, on only nine occasions in six months when the treatment required was repeated transfusions, and that infection of the blood stream was permitted to develop.

The testimony, said the court, in this case discloses that the defendant physicians were handling a serious and complicated case of multiple injuries. The patient was in extreme shock, resistance was low, bodily strength was at an ebb most of the time, disturbance by operation or manipulation a risky procedure, and the extreme severity of the initial injuries from the beginning was such that physicians recognized ultimate recovery as probably hopeless and that life itself could scarcely last beyond a few months. In a state of facts of this character, we believe that it was not within the province of any jury to adjudge the validity of the judgment and action of the attending physicians as to the course of their treatment without at least the aid of experts qualified as to knowledge in a field outside the knowledge and experience of laymen, and informed of the actual circumstances of the case in question on which they might deliver their opinion on the basis of either their actual knowledge or assumed facts in a hypothetical question based on the testimony in the case. The court accordingly concluded that the ruling of the trial court as to the necessity for expert testimony was correct.

The administrator contended, however, that if expert testimony as to the negligence of the defendant physicians is essential he had been deprived of an opportunity to present such testimony by the action of the trial court in refusing to permit him to propound questions to Dr. Costello, whom the administrator had called as his own witness, the answers to which would have been evidence as to various forms or hypothetical methods of treatment and would have stated the witness's opinion as to such matters. When the administrator, said the appellate court, sought to propound questions to Dr. Costello which called for answers outside the realm of pure fact, that is, what the physician actually saw and did, and endeavored to elicit from him information as to various forms or hypothetical methods of treatment and to obtain directly his own opinion as to such matters, the administrator was then invading the realm of expert knowledge and opinion in attempting to make of the witness not a mere relator of facts but an expert witness on behalf of the plaintiff. Objections were made to questions called for expert response and we believe were correctly sustained. The applicable statute (R. S. 2:97-12, N. J. S. A.) permits the examination of an adverse party as a witness but provides that, "except as otherwise provided by law, when any party is called as a witness by the adverse party he shall be subject to the same rules as to examination and cross examination as other witnesses." One of the established rules in this state, continued the court, as to the examination and cross examination of witnesses is that one may not be called and compelled to give expert testimony unless he shall have voluntarily contracted so to do. *Stanton v. Rushmore*, 112 N. J. L. 115, 169 A. 721. There is no authority for excluding the defendant physician in the instant case from the protection of that rule because he is a party to the litigation, nor do we find any intentment of such exclusion in the case just cited.

The judgment of nonsuit was accordingly affirmed.—*Hull v. Plume*, 37 A. (2d) 53 (N. J., 1944).

Society Proceedings

COMING MEETINGS

National Medical Association, St. Louis, Aug. 14-17. Dr. John T. Given, 1108 Church St., Norfolk, Va., Secretary.
Utah State Medical Association, Salt Lake City, August 24-26. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Fort Wayne, Ind.

11:101-140 (April) 1944

- An Explanation of Appetite F Hoelzel—p 101
Role of Fat Soluble Vitamins A and D in Nutrition J Buchstein—p 109.
Autonomic Pharmacology and Therapeutics of Gastrointestinal Tract L Pelner—p 116
Peptic Ulcer—Suggesting Malnutrition as Etiology Elizabeth Steele.—p 119
*Study of 127 Cases of Arthritis (With Notes on Gastrointestinal Features) J. A. Turnbull—p 122.

Arthritis and Gastrointestinal Factors.—Turnbull reviews observations on 127 patients with arthritis, of whom 98 were women and 29 were men. He evaluates the length of time they had suffered from arthritis, age at which arthritis was first manifested and occupation in its possible relation to the etiology of arthritis. Arthritis attacks the finger joints most often; the vertebral joints are least often affected, 37 patients were attacked in all joints. Joints protected by clothing do not appear to enjoy special immunity. A joint previously traumatized will be more severely involved in a general arthritis. A family history of arthritis was obtained in 29.1 per cent of the cases. Etiologic factors of arthritis suggested by this study are food allergy, focal and systemic infection, constipation, gastrointestinal disturbances, trauma, nervous shock, fatigue and exposure. Allied diseases known to be due to protein anaphylaxis are considered in their relation to the occurrence of arthritis. The popular connection between wet weather and arthritis is possibly due to observation of the effects of circulatory disturbances. The cutaneous tests for protein sensitization permit the selection of a diet which in most cases will relieve an arthritic patient of all or the greater part of his symptoms. This therapy is so simple and so readily carried out, requiring nothing more than a little self denial on the patient's part, that it deserves a trial in every case presenting arthritic symptoms.

American Journal of Hygiene, Baltimore

39:129-268 (March) 1944

- Studies on Artificial Immunization of Mice Against Infection with Dwarf Tapeworm, *Hymenolepis Nana* Var. *Fraterna* J. B. Larsh Jr.—p 129.
Relation Between Splenectomy and Resistance of Old Mice to Infection with *Hymenolepis Nana* Var. *Fraterna* J. B. Larsh Jr.—p 133
Epidemiology of Human Intestinal Parasite Infections in State Hospital of Indiana W. B. Hopp—p 138
Influence of Vitamins B₁ (Thiamine) and B₂ (Riboflavin) on Resistance of Rats to Infection with *Nippostrongylus Muris* J. Y. C. Watt.—p 145.
Leishmaniasis and Onchocerciasis: New Antigen for Their Diagnosis by Skin Test. J. T. Culbertson, H. M. Rose and Constance R. Demarest.—p 152.
Filariasis Bancrofti: Its Diagnosis by Immunological Tests with Antigen Derived from *Limnospoides Carini* J. T. Culbertson, H. M. Rose and Constance R. Demarest—p 156
Use of Insecticides on Men Artificially Infested with Body Lice. W. A. Davis and C. M. Wheeler—p 163
*Studies on Louse Control in Civilian Population W. A. Davis, F. M. Juvera and P. H. Lira—p 177.
Protection Against Endotoxins of Some Gram Negative Bacteria Conferred by Immunization with Heterologous Organisms P. A. Zahl and S. H. Hutner—p 189.
Primary Atypical Pneumonia, Etiology Unknown (Part II) J. H. Dingle, T. J. Abernethy, G. F. Badger, G. J. Buddingh, A. E. Feller, A. D. Langmuir, J. M. Rueggesser and W. B. Wood Jr—p 197

Louse Control in Civilian Population.—Davis and his associates describe the use of louse killing agents on civilian population in Mexico. The ultimate purpose of the work was to control typhus fever; the immediate aim was to rid an entire

town of lice cheaply, rapidly and with a minimum of equipment. The materials used were a lotion which kills both lice and nits in the hair and powders developed to kill lice in the clothes. The program included these steps: obtaining the cooperation of the people to be treated, mapping of every house in the town, taking a complete census of the town, examining the head and clothing of every person, giving two treatments in successive weeks and evaluating the results a month later. The program was developed in five small Mexican villages. In one of these typhus was epidemic and 64 per cent of the population had body lice. Following treatment, the epidemic stopped and the number of persons with lice approached zero in the second week. A month after the beginning of treatment, only 7 per cent of the population had lice.

American Journal of Surgery, New York

64:1-148 (April) 1944

- Genital Fistulas in Women' Life of J. M. Sims and History of Vesico-vaginal Fistula—Management of Rectovaginal Fistulas and Complete Tears of Perineum. L. E. Phaneuf—p 3
Use of Carbolic Acid (Phenol) in Treatment of Bartholinian Abscess. G. W. Phelan—p 28
Continuous Caudal Anesthesia in Obstetrics W. Levine, J. Herzlich, J. Halperin and H. Teller—p 31.
Culdoscopy' New Method in Diagnosis of Pelvic Disease—Preliminary Report. A. Decker and T. H. Cherry.—p 40
*Pelvic Reactions to Infections: Study of 493 Operative Cases. C. W. Barrett and A. F. Lash—p 45
*Topical Application of Horse Serum in Treatment of Extensive Burns H. M. Rabinowitz and L. Pelner.—p 55.
Exophthalmos: Diagnosis and Surgical Treatment of Intractable Cases J. L. Poppen—p 64
*Gangrene of Finger Following Digital Nerve Block: Report of 8 Cases with Discussion of Gangrene Pathogenesis. E. E. O'Neil and J. J. Byrne—p 80
Changing Concepts of Inguinal Hernia H. E. Stein—p 88
Acute Nonspecific Mesenteric Adenitis. W. E. King—p 92
Aseptic Resection and Anastomosis of Small Intestine H. P. Totten.—p 95
Pilonidal Sinus or Cyst—Misnomer. J. L. Magrath—p 101
Restoration of Facial Contour in Surgery of Secondary Cleft Lip and Palate A. D. Davis and G. A. Selleck—p 104.
Compression Fractures of Lumbar Vertebra Without Cord Involvement. F. S. Mainzer—p 115.
Allergic Phenomena in Relation to Abdominal Wound Evisceration: Case Reports and Experimental Work M. G. Henry.—p 118.
Circumcision Dressing B. G. Clarke—p 129

Pelvic Reactions to Infections.—Barrett and Lash review observations on 493 patients with partially arrested pelvic infections who were operated on at the Cook County Hospital Clinic. Most reactions to infections overcame the infection, but the reactions left adhesions, thickened tissues, masses large and small, which produced pain and interfered with the function of organs, and were often the site of returning activity by reason of dormant foci or reinfections, so that, in the interest of health, operation became necessary. The etiologic factors were gonococci, abortions and the puerperium. Nulliparas predominated, and 78.7 per cent of the women were below 30 years of age. Surgical treatment was considered only when infection had produced permanent changes in the pelvic structures. In the choice of operation there was a distinct leaning toward conservatism. The important steps in surgical treatment are proper preparation of the patient, proper election of time of operation and rational conservation of tissue. Though gonococci may be common primary and secondary invaders, pyogenic organisms assume the chief role in destroying the female pelvic organs. In these conditions methods of treatment other than surgical are at best only palliative. As the pyogenic organisms, especially streptococci, are commonly found in the tissues, due time must elapse between the last acute exacerbation and the operation to allow immunization of the patient. Though the dormant bacteria were found to be virulent, they were avirulent in the presence of the active antibodies of the patient. The best guides for determining the proper time to operate are temperature, leukocyte curve and the degree of tenderness in the lower part of the abdomen. The foregoing principles were adhered to in the described series of patients and the mortality was only 1.42 per cent, which corresponds to the mortality reported in the literature. The low mortality was largely due to their method of dealing with conglomerated masses, which they outline in this paper.

Topical Application of Horse Serum in Burns.—Rabinowitz and Peiner say that for nearly fifteen years they have employed topical application of normal horse serum to severe burns. They had deduced that local application of horse serum tended to act as a physiologic plug to excessive plasma loss in addition to the healing and bactericidal properties of serum and plasma. After treatment of the burn shock with transfusions, the readily accessible blebs are broken with sterile scissors. The burn is not washed unless it is grossly contaminated, and no débridement is done. The burn is sprayed with normal horse serum, at first every hour and later at longer intervals. A small heat lamp is played over the area until the serum and plasma are coagulated. After about ten days to two weeks the burned part is soaked in sterile saline solution and, as the eschar separates, spraying and saline washings are repeated until complete epithelization takes place. Fifty-two patients with burns of second and third degree were treated in this manner. Eight patients in whom more than 75 per cent of the body surface was involved died within a few hours. In the recoveries the rate and extent of healing seemed remarkably fast. The absence of infection and pain was noteworthy. The healed burns exhibited little or no scarring, and contractures commonly due to burns were not in evidence. In only 1 case was there evidence of mild serum sickness. No skin grafting had to be done on any of these patients. Comparative experiments on animals likewise proved the superiority of the horse serum treatment over treatment with tannic acid and silver nitrate. The authors discuss the role of the protein degradation products cystine, cysteine and methionine in the process of plasma coagulation in burned areas.

Gangrene of Finger Following Digital Nerve Block.—O'Neil and Byrne point out that gangrene occasionally follows digital nerve block. They report 8 cases to illustrate that this complication is not so infrequent as the perusal of the literature would indicate. The injected solution may interfere with the digital circulation and produce gangrene if too much solution is used, if epinephrine is present in the solution or if tourniquets are used. If damage to the circulation is not sufficient in itself to produce the gangrene, subsequent soaking of the finger in hot or even warm water may hasten devitalization of the tissue. Digital nerve block should be replaced, whenever possible, by general anesthesia consisting of pentothal, gas-oxygen or ether. If it becomes necessary to use a local anesthetic great care should be taken in performing the nerve block. No tourniquet nor solution containing epinephrine should be used. Only a small quantity of solution should be used, from about 1 to 1.5 cc. for the entire block. Soaks are contraindicated for at least twenty-four hours.

American Journal of Tropical Medicine, Baltimore

24:55-156 (March) 1944. Partial Index

- Typhus Fever. Note on Severity of Disease Among Unvaccinated and Vaccinated Laboratory Personnel at National Institute of Health. N. H. Topping—p. 57.
Susceptibility of Marmosets to Different Strains of Yellow Fever Virus. H. W. Laemmert Jr.—p. 71.
Saimiri Monkey as Experimental Host for Virus of Yellow Fever. M. Bates—p. 83.
Experiments with Virus of Yellow Fever in Marsupials, with Special Reference to Brown and Grey Masked Opossums. M. Bates—p. 91.
Anopheles of Panama, with Special Reference to Hand Lens Identification and Notes on Collecting and Care of Specimens. C. P. Baxter and J. Zetek—p. 105.
Role of Reservoir Host in Tropical Disease. E. H. Hudson—p. 125.
Feeding Habits of Proven and Possible Mosquito Vectors of Western Equine and St. Louis Encephalitis in Yakima Valley, Washington. W. C. Reeves and W. McD. Hammon—p. 131.
Acute Dysentery Produced by Shigella Alkaliscens. Report of Case with Necropsy. R. H. Rigdon, I. D. Michelson and T. Allen—p. 135.
Malaria Thick Films Contaminated with Excretions of Flies Containing Flagellates (Herpetomonas). A. A. Packhamian—p. 141.

Feeding Habits of Mosquito Vectors of Encephalitis.—Reeves and Hammon state that as part of an epidemiologic study of the mosquito vectors of encephalitis in the Yakima Valley, Washington, a large series of blood engorged specimens, collected in domestic habitats, were tested by means of the precipitin method to determine the relative proportions which fed on domestic animal reservoirs of these infections and on man. Hand collections were made on the horse, cow and man to determine which of the various mosquito species fed on these

hosts. It was found that *Culex tarsalis*, the species best fitting the epidemiologic picture as a mosquito vector of encephalitis in the Yakima Valley, fed frequently on domestic fowl and included most of the common domestic animals and man in its feeding range. The feeding habits of this species alone could result in the incidence of encephalitis antibodies demonstrated in domestic animals and man in the Yakima Valley. The results of the precipitin tests, and the repeated isolations of virus from *Culex tarsalis*, give strong support to the probability that domestic fowl are an important reservoir of infection in the Yakima Valley.

Annals of Surgery, Philadelphia

119:289-480 (March) 1944

- Psychosomatic Surgery. B. Brooks—p. 289.
Indications For and Experiences With Total Gastrectomy, Based on 73 Cases of Total Gastrectomy. F. H. Lahey and S. I. Marshall—p. 300.
Acute Perforation in Gastrointestinal Ulceration: With Special Reference to End Results. W. L. Estes Jr. and B. A. Bennett Jr.—p. 321.
Carcinoma of Duodenum. Report of 2 Cases in Suprapapillary Portion. I. Cohn—p. 342.
Congenital Pyloric Stenosis. C. A. Vance—p. 351.
Neurofibroma of Small Intestine: Report of Case. J. D. Collins—p. 362.
Massive Resection of Small Intestine: Report of 2 Cases. W. H. Prouleau—p. 372.
Simple Penetrating Ulcer of Cecum. C. Rosser—p. 377.
Surgical Indications in Diseases of Common Bile Duct. R. L. Sinder—p. 384.
Cholesterosis. Its Significance in Badly Damaged Gallbladder. N. A. Womack and H. Haffner—p. 391.
Combined Vascular and Nerve Injuries of Warfare. D. C. Elkin and B. Woodhall—p. 411.
Control of Pain in Posttraumatic and Other Vascular Disturbances. Role of Sympathetic Nervous System in Treatment of Peripheral Vascular Diseases. H. Mahorner—p. 432.
Surgical Treatment of Experimental Coarctation (Atresia) of Aorta. A. Blalock and E. A. Park—p. 445.
Ligation of Abdominal Aorta for Aneurysm: Complicated by Rupture into Retroperitoneal Space. J. J. Morton and W. J. M. Scott—p. 457.
Technical Simplicity of Matas Endoaneurysmorrhaphy. I. M. Gage—p. 468.

Archives of Dermatology and Syphilology, Chicago

49:227-304 (April) 1944

- Bechet's Syndrome with Involvement of Central Nervous System. Report of Case, with Necropsy, of Lesions of Mouth, Genitalia and Eyes, Review of Literature. C. Berlin—p. 227.
Colloid Degeneration of Skin. Report of 3 Cases from Australia. E. A. Hard—p. 234.
*Dermatitis Venenata and Keratoconjunctivitis Caused by Manzanillo Tree. J. S. Snow and R. D. Harley—p. 236.
Rapid Macroflocculation Test for Syphilis: Method of Rippert and Eichhorn. E. A. Hewish and M. M. Barrett—p. 240.
*Successful Inoculations of Animals with Trichophyton Purpureum: Observations on Course of Disease and Immunologic and Histologic Features. F. Reiss—p. 242.
Misuse of Sulfonamide Compounds. D. Bloom—p. 249.
Calibration of X Ray Equipment for Superficial Therapy. C. E. Eddy—p. 250.
Dermatitis of Eyelids. H. H. Hazen—p. 253.
Keratoderma Chimericum: Cures with Natural and with Synthetic Estrogen. W. Garbe—p. 254.
Tuberculin Patch Test and Mantoux Test. Comparative Study in Cases of Various Dermatoses, Including Tuberculodermas. F. Pascher and M. B. Sulzberger—p. 256.
Tropical Ulcer. O. G. Costa—p. 260.
Bentonite. H. Goodman—p. 264.
Dermatitis from Carrots. S. M. Peck, L. W. Spolyar and H. S. Mason—p. 266.
Multiple Idiopathic Hemorrhagic Sarcoma of Kaposi in Full Blooded Negro. B. P. Persky and J. R. Lisa—p. 270.
Aerodermatitis Continua (Hallepeau): Effect of Treatment with Sulfapyridine. W. J. Lever—p. 273.
Keloids as Sequel to Varicella. E. F. Traub—p. 278.

Dermatitis Venenata and Keratoconjunctivitis Caused by Manzanillo Tree.—Snow and Harley direct attention to the lesions of the skin and eye produced by contact with the lesions of the skin and eye produced by contact with the manzanillo or beach apple tree, which is found along the beaches throughout the Caribbean area and resembles the North American crabapple. During the past two years 18 patients with manzanillo dermatitis have been admitted to Gorgas Hospital. The clinical appearance was similar to that produced by Rhus toxicodendron. The patients could recall recent contact with the tree when it was described to them. An acute dermatitis venenata soon appeared over the exposed areas, consisting of bright erythema, edema and vesiculation. Large blisters at least even bullae an inch (2.5 cm.) in diameter were present in the severe eruptions. The areas most frequently involved were the

face, hands, forearms, upper part of the trunk and genitalia. The manzanillo dermatitis responded to bland, soothing therapy. Cool compresses of solution of boric acid to the face gave relief. For the generalized lesions, especially when there was involvement of the genitalia, cool starch and soda tub baths were helpful. Calamine lotion N. F. with 1 per cent phenol and zinc oxide ointment U. S. P. were used freely. The lesions usually cleared in five to ten days. The eyes were involved in 4 cases. These patients were brought into the hospital with both eyes tightly closed, lacrinating profusely and in pain. There were erythema and edema of the eyelids and vesiculation on the delicate skin about the eyes. Blepharospasm was so great that it was almost impossible to force the lids apart until an anesthetic solution had been applied. Fluorescein stain showed that the corneal epithelium was denuded. Treatment of the keratoconjunctivitis was directed toward preventing infection and waiting for the corneas to reepithelize. To relieve pain a 0.5 per cent solution of tetracaine hydrochloride or an ointment containing tetracaine base was effective. When the spasm of the lid muscles was relieved sufficiently to allow the lids to be separated, the conjunctival sacs were irrigated with copious quantities of isotonic solution of sodium chloride. Effective prophylactic measures are (1) prompt immersion in sea water, preferably with the eyes open, and (2) thorough washing of the entire body with soap and water.

Inoculation of Animals with Trichophyton Purpureum.—Reiss inoculated rabbits with cultures of *Trichophyton purpureum* grown on a 4 per cent dextrose agar medium for from two to three weeks at room temperature. Two strains of organisms were used: (a) a granular strain, which was cultured from a patient with chronic onychomycosis, and (b) a fluffy strain, which was isolated from a patient with chronic disseminated dermatophytosis and follicular involvement of the beard as well as invasion of the skin of the feet, buttocks and scalp. The experiments were done on three series of animals: (1) untreated rabbits (control), (2) rabbits exposed to roentgen irradiation of the spleen and (3) castrated rabbits. Castrated rabbits exhibited the greatest response to the infection, whereas rabbits whose spleen had been exposed to roentgen rays showed a less active infection than the castrated animals. One rabbit inoculated with the cutaneous and intracutaneous methods simultaneously showed traces of infection nine months after the last inoculation. All other control rabbits treated with the cutaneous method alone exhibited a spontaneous cure after six to eight weeks. The clinical features of the infection in rabbits resemble those of the infection in human beings. An allergic reaction could not be elicited by intracutaneous injections of trichophytin. Susceptibility to infection with *T. purpureum* is increased by irradiation and by castration. Fungi were not found in direct examinations of hair from the infected areas. In one section of a cutaneous biopsy only one infected hair follicle was found. This behavior of the fungus in animals is comparable with its behavior in human subjects, in whom the fungus is regularly found in the scales and not in the hair.

Bulletin of Johns Hopkins Hospital, Baltimore

74:161-228 (March) 1944

- *Effect of Hemoglobin and Related Pigments on Renal Functions of Normal and Acidotic Dog. R. J. Bing.—p. 161.
Acute Diffuse Interstitial Fibrosis of Lungs. L. Hamman and A. R. Rich.—p. 177.
Granuloma Inguinale as Cause of Arthritis and Osteomyelitis: Report of Case. R. B. Scott, J. Lyford III and R. W. Johnson Jr.—p. 213.

Effect of Hemoglobin and Related Pigments on Renal Functions.—The effect of hemoglobin and related pigments on renal function has recently attracted interest owing to the frequency with which anuria was observed after the excretion of myoglobin following crush injuries and during methemoglobinuria accompanying blackwater fever. Acidosis appears to be an important factor in the production of renal lesions in these conditions. Bing investigated the effect of acidosis alone, of acidosis combined with action of hemoglobin, methemoglobin and myoglobin on renal function and compared the information obtained through clearance studies with the pathologic lesions found in the kidney of animals injected with these substances. Intravenous infusion of crystalline methemoglobin into dogs rendered acidotic with ammonium chloride is followed by a fall in the effective renal plasma flow, glomerular filtration

rate and the tubular reabsorptive capacity for glucose. The renal lesion in acidotic dogs infused with methemoglobin consists of hydropic degeneration of the proximal convoluted tubules, cellular necroses in the distal segment and plugging of the collecting tubules with hyaline and in some instances with pigmented casts. Dilatation of the collecting tubules and glomerular damage are absent. Infusions of myoglobin and of hemoglobin into acidotic animals and of methemoglobin and hemoglobin into normal animals fail to produce renal failure. The intravenous infusion of lactic acid and of hydrochloric acid produces a rapid fall in clearances caused by the urinary excretion of methemoglobin. Acidosis produced by oral administration of ammonium chloride has no effect on the renal function.

Cancer Research, Baltimore

4:209-272 (April) 1944. Partial Index

- Spectrographic Analysis of Carcinogenic Hydrocarbons and Metabolites. R. N. Jones, C. E. Dunlap and C. J. Gogek.—p. 209.
Studies in Selective Differentiation of Tissues by Means of Filtered Ultraviolet Light. L. Herly.—p. 227.
Chromosome Complexity in Regenerating Rat Liver. J. J. Bieseke.—p. 232.
Mitotic Incidence in First Forty-Eight Hours of Methylcholanthrene Epidermal Carcinogenesis. Helen C. Keller and Zola K. Cooper.—p. 236.
Multiple Constitution of Abnormal Ciliates Produced by Blastomatogenic Agents. J. C. Mottram.—p. 241.
Ascorbic Acid Content of Liver in Mice. E. L. Kennaway, N. M. Kennaway and F. L. Warren.—p. 245.
Effects of Low Lysine Diet on Growth of Spontaneous Mammary Tumors in Mice and on Na Balance in Man. R. A. Kocher.—p. 251.
Characterization of Influence Affecting Growth of Transplantable Leukemias in Mice. L. W. Law.—p. 257.

Georgia Medical Association Journal, Atlanta

33:61-88 (March) 1944

- Complications of Coronary Thrombosis. C. C. Maher.—p. 61.
Malignant Lymphoma. J. Funke.—p. 69.
Fused Kidneys: With Special Reference to Horseshoe Kidneys. S. A. Kirkland.—p. 73.
Primary Atypical Pneumonia of Unknown Cause. M. S. Dougherty Jr.—p. 76.

33:89-130 (April) 1944

- Memorial Exercises. W. R. Dancy.—p. 89.
Mycotic Aneurysm: Report of 2 Cases. R. B. Logue and J. F. Hanson.—p. 94.
Study of Basal Metabolic Rates and Associated Conditions in College Group. Marian E. Farbar.—p. 98.

Journal of Experimental Medicine, New York

79:331-462 (April) 1944

- Paraaminobenzoic Acid Production by Staphylococci. W. W. Spink, L. D. Wright, J. J. Vivino and Helen R. Skeggs.—p. 331.
Immunologic Relationships Among Central Nervous System Viruses. J. Casals.—p. 341.
Interference Between the Influenza Viruses: I. Effect of Active Virus on Multiplication of Influenza Viruses in Chick Embryo. J. E. Ziegler Jr. and F. L. Horsfall Jr.—p. 361.
Id: II. Effect of Virus Rendered Noninfective by Ultraviolet Radiation on Multiplication of Influenza Viruses in Chick Embryo. J. E. Ziegler Jr., G. I. Lavin and F. L. Horsfall Jr.—p. 379.
Duration of Immunity to Plasmodium Knowlesi Malaria in Rhesus Monkeys. J. Maier and L. T. Coggeshall.—p. 401.
*Therapeutic Effectiveness of Penicillin in Experimental Murine Typhus Infection in dba Mice. V. Moragues, H. Pinkerton and D. Greiff.—p. 431.
Blood Sucking Vectors of Encephalitis: Experimental Transmission of St. Louis Encephalitis (Hubbard Strain) to White Swiss Mice by American Dog Tick, Dermacentor Variabilis Say. R. J. Blattner and F. M. Heys.—p. 439.
Studies on Denaturation of Antibody: I. Action of Urea on Diphtheria Antitoxin. G. G. Wright.—p. 455.

Penicillin in Experimental Murine Typhus.—Penicillin was shown to inhibit the growth of murine typhus rickettsias in the yolk sac of the developing hen's egg. Moragues and his associates administered penicillin in large but nontoxic doses to mice injected with murine typhus rickettsias. The treatment resulted in a reduction in mortality, particularly when the initial dose of rickettsias was relatively small, approaching the minimal lethal dose. No evidence, of secondary bacterial infection was obtained by bacteriologic and microscopic studies. It appears, therefore, that the greatly increased survival rate in the treated mice was caused by the action of penicillin on typhus rickettsias. No prediction can be made from these experiments concerning the effect of penicillin on human typhus infection. Since the

human disease is caused by the growth of rickettsias in vascular endothelium, intravenous injection of penicillin would bring the drug into direct contact with the cells containing the organisms. If sufficiently high concentration of the drug can be established in the blood stream in the early stages of the disease, it would seem reasonable to expect a beneficial therapeutic effect. The results suggest that treatment in the early stages of illness may be important and that the duration and intensity of treatment should be somewhat increased over that ordinarily used in bacterial infections.

Journal-Lancet, Minneapolis

64:95-132 (April) 1944

- War and Postwar Menace. K. Emerson.—p. 95.
Medical Students and Tuberculosis. J. H. Schultz.—p. 96.
Early Diagnosis of Pulmonary Tuberculosis. M. K. Mihran.—p. 97.
Diagnosis and Treatment of Tuberculosis. W. L. Meyer.—p. 100.
Use of Miniature X-Ray Films in Tuberculosis Control. H. L. Hiebert.—p. 101.
Review of 84 Cases of Pleural Fluid. S. G. Clayman.—p. 104.
Failure to Detect All Tuberculosis on Induction to Military Service. J. A. Myers.—p. 111.
History of Practical Chest Roentgen Photography 35 mm. Film Method. D. O. N. Lindberg.—p. 113.
Problems, Opportunities and Obligations Confronting Health Educators. C. E. Lyght.—p. 115.

Journal Neuropath. and Exper. Neurology, Baltimore

3:101-198 (April) 1944

- Acute Primary Hemorrhagic Meningoencephalitis. M. S. Margulis, V. D. Soloviev and A. K. Shubladze.—p. 101.
*Anatomic Changes of Motor Nerve Endings in Human Muscles in Early Poliomyelitis. E. J. Carey, L. C. Massopust, W. Zeit and E. Haushalter.—p. 121.
Peculiar Cells and Fibers in Central Nervous System. A. Avtsin.—p. 131.
Experimental Studies on Electro Shock Treatment: Intracerebral Vascular Reaction as Indicator of Path of Current and Threshold of Early Changes within Brain Tissue. L. Alexander and H. Löwenbach.—p. 139.
Pathologic Considerations of Contusion of Cauda Equina. G. B. Hassin.—p. 172.
Effects of Implantation of Methylcholanthrene in Brain of Dog. P. Bailey, K. Shimizu and E. W. Davis.—p. 184.
Human Pyramidal Tract: VIII. Preliminary Investigations of Effect of Hemiplegias on Fiber Components of Pyramids. A. M. Lassek.—p. 189.
Arnold-Chiari Malformation: Method of Presentation. J. A. Wagner.—p. 193.
Anterior Communicating Artery in Man. H. S. Rubinstein.—p. 196.

Motor Nerve Endings in Early Poliomyelitis.—Carey and his associates describe changes that occurred in the muscles of 3 patients with poliomyelitis. All 3 had died as a result of fulminating bulbar poliomyelitis and had paralysis of the intercostals and accessory muscles of respiration. The poliomyelitic muscle changes were studied by the gold method in comparison with muscles from 2 normal controls. Practically complete denervation of the extrafusal muscle fibers at the myoneural junctions of human respiratory muscles (diaphragm, intercostals, sternocleidomastoid and trapezius) occurred within thirty-six hours of the onset of sore throat and elevated temperature in a fulminating case of bulbar poliomyelitis. This anatomic denervation at the myoneural junction was undoubtedly a terminal result of a pathologic change going on during the incubation period. From 36 to 168 hours after the onset of sore throat and elevated temperature microscopic examination pointed to a rapid centripetal extension of the degeneration in the axons originating possibly in the degenerated motor end plates of many nerve trees. The afferent medullated nerves from and efferent nerves to the intrafusal fibers of some sensory muscle spindles appeared to be more resistant to granular degeneration during the early stages of the disease than were the corresponding motor nerves to the extrafusal fibers in the same muscle. The differential effects of the virus of poliomyelitis on sensory muscle spindles and motor end plates may be the anatomic basis within the musculature for the sensory and motor disturbances in voluntary muscles such as pain, tenderness, myotatic reflex rigidity or shortening, asthenia, ataxia due to disturbance of reciprocal innervation, and flaccid paralysis. There was a striking passive hyperemia of the capillaries in some human muscles. Many muscle fibers had a granular and hyaline degeneration which replaced the transverse and longitudinal striations. There was a proliferation of the perivascular reticuloendothelial mesen-

chyme leading to the differentiation of epithelial-like lipoblasts in human poliomyelitic muscle. These changes were highly irregular with regard to localization and distribution, so that large amounts of teased muscle material must be studied.

Journal of Nutrition, Philadelphia

27:287-354 (April) 1944

- Effects on Respiratory Metabolism Produced by Equal Amounts of Caffeine in Form of Coffee, Tea and Pure Alkaloid. J. Haldi, G. Bachmann, C. Ensor and W. Wynn.—p. 287.
Some Observations of Dark Adaptation in Man and Their Bearing on Problem of Human Requirement for Vitamin A. E. L. Batchelder and Jane C. Ebbs.—p. 295.
Study of Neuromuscular Regeneration Under Different Levels of Vitamin C Intakes. H. M. Hines, B. Lazere, J. D. Thomson and C. H. Cretzmeier.—p. 303.
Response to Intravenous Injection of Ascorbic Acid as Indicated by Urinary Excretion of Total and Reduced Forms. G. H. Berryman, C. E. French, H. A. Harper and H. Pollack.—p. 309.
Survey of Ascorbic Acid Status of College Students. Mary L. Dodds and Florence L. MacLeod.—p. 315.
Maintenance of Adult Rats on Diets Low in Certain B. Vitamins. E. C. Miller and C. A. Baumann.—p. 319.
B Vitamin Content of Groats and Rolled Oats. J. M. Cooperman and C. A. Elvehjem.—p. 329.
Studies of Comparative Nutritive Value of Fats: II. Comparative Composition of Rats Fed Different Diets. H. J. Deuel Jr., Lois F. Hallman, E. Movitt, F. H. Mattson and Esther Wu.—p. 335.
Studies of Comparative Nutritive Value of Fats: III. Effect of Flavor on Food Preference. H. J. Deuel Jr. and E. Movitt.—p. 339.
Studies on Urinary Excretion of Riboflavin. Virginia H. Feder, G. T. Lewis and H. S. Alden.—p. 347.

New England Journal of Medicine, Boston

230:445-476 (April 13) 1944

- *Prolonged Disturbances of Consciousness Following Head Injury. B. E. Moore and J. Ruesch.—p. 445.
Meningococcal Meningitis: Report of 33 Cases with No Deaths. R. R. Meyer.—p. 452.
Inhalation Therapy. M. S. Segal.—p. 456.

Prolonged Disturbances of Consciousness Following Head Injury.—The material presented by Moore and Ruesch consists of data obtained from medical, neurologic and psychologic examinations of 39 patients with disturbances of consciousness, such as coma, semicoma, confusion, delirium, stupor, drowsiness and dysphasia lasting longer than seventy-two hours after injury to the head. A high incidence of altered electroencephalogram, skull fracture, bloody spinal fluid under increased pressure and Babinski sign gave evidence that prolonged mental confusion is associated with severe brain damage. Important changes in vital signs were present in only half the cases and appeared to be independent of the presence and duration of confusion. During the period of hospitalization immediately following injury, intellectual disturbances outnumbered other mental abnormalities. Emotional disorders tended to appear later than the cognitive dysfunctions and persisted longer; they were frequent even in cases of short confusion. Ability to speak returned on an average within the first day. The first response to simple psychologic tests appeared during the second week, before correct orientation in place, situation and time, which returned in that order. Drowsiness and restlessness held no fixed place in the order of recovery and appear to be independent of the course of recovery of intellectual function. Gross intellectual defect persisted for six months in 31 per cent of the patients and was preceded in every case by a period of confusion lasting longer than nineteen days. The duration of disorientation proved to be one of the most reliable and easily obtainable criteria of the seriousness of mental prognosis. The total duration of post-traumatic amnesia is directly related to the period of disorientation and thus has equal value but is available only later and is then a purely subjective quantity.

New Orleans Medical and Surgical Journal

96:435-488 (April) 1944

- Acute Pericarditis Due to Streptococcus Viridans. M. D. Hargrove.—p. 435.
New and Important Applications of Carbon Tetrachloride in Medical Therapy. G. F. Fasting.—p. 439.
Acute Ventricular Failure. H. E. Rollings.—p. 446.
Symposium on Uses of Sulfonamides: Sulfonamides in Internal Medicine. C. J. Tripoli.—p. 455.
Sulfonamides in Surgery. I. Cohn.—p. 461.
Sulfonamides in Urology. W. A. Read.—p. 465.
Sulfonamides in Gynecology and Obstetrics. C. H. Tyrone.—p. 466.
Sulfonamides in Otolaryngology. W. A. Wagner.—p. 466.

North Carolina Medical Journal, Winston-Salem

5:121-172 (April) 1944

- Cancer Control Movement. J. B. Murphy.—p. 121.
*Treatment of Kidney Disease and Hypertensive Vascular Disease with Rice Diet. W. Kempner.—p. 125.
Experimental Comparison of Certain "Skin Sterilizing" Agents: Preliminary Report. T. C. Bost.—p. 133.
*Sulfonamides in Treatment of Acute Hemorrhagic Nephritis. J. F. Crumpler.—p. 140.
Thumbail Sketches of Eminent Physicians: IV. Paracelsus the Iconoclast (1493-1541). J. C. Trent.—p. 142.

Rice Diet in Renal and Vascular Disease.—Kempner used a dietary regimen consisting of rice, sugar, fruit and fruit juices supplemented by vitamins and iron during the past four years in patients with acute and chronic glomerulonephritis and hypertensive vascular disease. The diet contains in 2,000 calories from 15 to 25 Gm. of protein, 4 to 6 Gm. of fat, 460 to 470 Gm. of carbohydrate, 0.25 to 0.4 Gm. of sodium and 0.1 to 0.15 Gm. of chloride. The amount of fruit juices given daily is usually 700 to 1,000 cc. The diet proved to be beneficial in the majority of the 140 patients who followed this regimen for periods ranging from four days to thirty months in the hospital and at home. In no instance has the diet proved harmful. Careful medical supervision, including studies of blood and urine chemistry, is essential. The histories of 2 patients, 1 with chronic glomerulonephritis, the other with hypertensive cardiovascular disease, are given to illustrate the effects which a rice-fruit-sugar diet may have on hypertension, heart enlargement, electrocardiographic changes, edema, hypoproteinemia, nonprotein nitrogen, hypercholesteremia, albuminuria and retinopathy.

Sulfonamides in Acute Hemorrhagic Nephritis.—According to Crumpler acute hemorrhagic nephritis is a common disease of infants and children following measles, scarlet fever, skin infections and particularly streptococcal infections of the upper respiratory tract. The hemolytic streptococcus causes most cases of hemorrhagic nephritis; however, *Streptococcus viridans*, the pneumococcus or the gonococcus may occasionally be the invading organism. The onset is gradual. The symptoms are suppression of urine, elevation of blood pressure, nausea, vomiting, edema, confusion and convulsions. Urinalysis shows albumin, red blood cells, white blood cells, casts and decreased urinary function. There is elevation of the nonprotein nitrogen and the blood urea. Since most cases of acute hemorrhagic nephritis are caused by the hemolytic streptococcus the sulfonamides are indicated in their treatment, along with surgical removal of foci of infection when these exist. Sulfanilamide is probably the drug of choice, since it is less likely to crystallize in the urinary tract. The drug is given in relatively small doses, which should be continued until a complete cure is established. Sulfanilamide should be given before and after surgery to prevent an exacerbation or recurrence of the acute nephritis. The author reviews observations in 17 cases of acute hemorrhagic nephritis which have been treated with sulfonamides in the Park View Hospital and at his office with favorable results. There was no evidence of kidney damage in any case.

Public Health Reports, Washington, D. C.

59:449-484 (April 7) 1944

- Nomenclature of Pneumococcal Types. Bernice F. Eddy.—p. 449.
Study of Cross Reactions Among Pneumococcal Types and Their Application to Identification of Types. Bernice E. Eddy.—p. 451.

59:485-512 (April 14) 1944

- Cross Reactions Between Several Pneumococcal Types and Their Significance in Preparation of Polyvalent Antiserum. Bernice E. Eddy.—p. 485.

South Carolina Medical Assn. Journal, Florence

40:53-72 (March) 1944

- Rheumatic Fever. A. W. Browning.—p. 55.
Missed Abortion. R. F. Zeigler Jr.—p. 57.
History of Anesthetic Drugs. R. P. Walton.—p. 60.

40:73-90 (April) 1944

- Reconstruction of Lower Jaw: Case Report. A. T. Moore and W. C. Cook.—p. 73.
Vitamin A and Color Vision. J. A. Richardson and F. W. Kinard.—p. 76.
Pollen Counts, 1941-1943—Columbia, S. C. Katharine Baylis MacInnis.—p. 77.

Surgery, St. Louis

15:521-680 (April) 1944

- *Use of Plasma for Filling Pleural Space After Loss of Varying Amounts of Lung. W. E. Adams and T. F. Thornton.—p. 521.
Management of Burns. F. E. Walton.—p. 547.
Secondary Carcinoma of Mandible: Analysis of 71 Cases. R. E. Buirge.—p. 553.
Jejunostomy for Decompression of Postoperative Stomach. A. W. Allen and G. Donaldson.—p. 565.
Perforation of Postoperative Jejunal Ulcers. K. W. Warren and L. S. Fallis.—p. 569.
New Portable Suction Apparatus for Use with Miller-Abbott Tube. J. A. Gius and C. A. Racely.—p. 574.
Multiple Primary Carcinomas of Gastrointestinal Tract. W. I. Sheinfeld and I. Rudolph.—p. 579.
Bilateral Oophorectomy with Radical Operation for Cancer of Breast. J. S. Horsley.—p. 590.
Internal Fixation of Fractures of Patella with Cotton Suture Material. L. K. Loomis.—p. 602.
Experimental Head Injury Produced by Blasting Caps. S. R. Govons.—p. 606.
Case of Infection with *Clostridium Sordellii* and Case of Gas Gangrene Treated by Penicillin. H. D. Harvey and F. L. Meleney.—p. 622.
Subperitoneal Rupture of Intestine Due to Muscular Effort: Case Report. F. Christopher.—p. 628.
Accessory Operating Table for Oral Surgery on Infants and Children. B. Goldman.—p. 630.
Aseptic Appendectomy—Application of Parker-Kerr Suture to Appendical Stump. F. P. Shidler.—p. 634.
Lesions of Terminal Colon Associated with Urinary Disturbances. J. A. Lazarus.—p. 637.
*New Technic for Repair of Facial Paralysis with Tantalum Wire. W. W. Schuessler.—p. 646.
Association of Thrombophlebitis with Hematogenous Bone Infection. A. O. Wilensky.—p. 653.
Simple Technic for Multiple Venipunctures. C. M. Rhode.—p. 654.

Plasma for Filling Pleural Space After Loss of Lung Tissue.—Adams and Thornton show that alteration of the blood, in the resection of various amounts of lung tissue, may be considerable. Factors not encountered in operations on other organs may contribute to this alteration, namely (1) the incision is long and usually divides heavy bellied muscles transversely, (2) vascular adhesions are frequently encountered and (3) the amount of blood within the lung may be considerable. Following these operations both cells and plasma of the circulating blood are lost, part of this being drained away (as much as 600 to 1,200 cc. following lobectomy) or allowed to accumulate in the pleural space (as in pneumonectomy). The postoperative course of a patient would be less complicated if a more nearly normal blood picture was maintained. Since resection of the lung is at present frequently indicated for malignancy, bronchiectasis, lung abscess, and tuberculosis, the factor of blood protein replacement assumes greater importance. To determine the method of choice for replacement of protein loss, the authors investigated in animal experiments not only the various causes of blood plasma protein fall but also the replacement therapy. They found that following resection of lung tissue in dogs blood plasma protein levels were reduced by 33½ per cent. This reduction persists for as long as ten days. The removal of lung tissue, the thoracotomy wound, anesthesia and infection are all contributing factors to the fall in plasma proteins. Replacement therapy consisted in the administration of blood or serum intravenously or serum intrapleurally. Both replacement materials and routes of administration were equally effective when the materials were given in adequate amounts.

Repair of Facial Paralysis with Tantalum Wire.—White suggested the use of tantalum wire for repair of facial paralysis. Schuessler describes the tantalum wire method as used at the Walter Reed General Hospital. The method is simple and effective, and it stabilizes the mouth, the lower end of the nose, and the eyelids, thereby transmitting some elements of expression to the paralyzed side. The operation is performed under local anesthesia. No disability or bed rest is necessary, as no incision is made for the removal of fascia from the thigh. When the wires are in position the patient can sit up and the wires can be tightened to the proper tension, thereby doing away with the amount of sagging in the paralyzed side which occurs when the patient is lying down. There is no swelling or hemorrhage in the tissues of the paralyzed side because of the very slight trauma which is produced by the small caliber of the needle. This method can also be used to hold muscles in balance during the time the nerve is regenerating, and when fully recovered the wires can be removed.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

17:33-64 (Feb.) 1944

- Enquiry into Causation and Characteristics of Cephalhematomata. J. B. Hartley and C. W. F. Burnett.—p. 33.
Regression of Tumors Following Treatment by Stilbestrol and X-Ray Therapy, with Notes on Case of Breast Tumor Which Regressed with Stilbestrol Alone. G. G. Binnie.—p. 42.
Dosage System for Linea Gamma Ray Sources. D. E. A. Jones.—p. 46.
X-Ray Appearances in Amebic Hepatitis. J. Munk.—p. 48.
Nature and Functions of Intervertebral Disks. F. Roberts.—p. 54.
Cholecystography: Phenidol as Medium for Graham-Cole Test. G. T. Calthrop.—p. 60.
Focal Osteitis Fibrosa of Skull: Case Record. J. A. Brocklebank.—p. 62.

17:65-100 (March) 1944

- "The Eye and Radiology," a Symposium. J. F. Bromley, W. D. Wright and G. Spiegler.—p. 65.
Pneumoroentgenography of Knee Joint. P. P. Hauch.—p. 70.
Production of Isodose Curves and Calculation of Energy Absorption from Standard Depth Dose Data. W. J. Meredith and G. J. Neary.—p. 75.
Venography in Primary Axillary Vein Thrombosis: Case Report. E. Samuel.—p. 83.
Some Condenser Ionization Chambers for Measurement of X-Ray Dose. C. W. Wilson.—p. 86.
Use of Wedge Filters in Deep X-Ray Therapy. F. Ellis and H. Miller.—p. 90.
Bone Degeneration in Temporomandibular Joint: Case Report. J. W. McLaren.—p. 94.
Medical Uses of Radium: Summary of Reports from Experimental Research Centers for 1942. Medical Research Council.—p. 96.

British Journal of Surgery, Bristol

31:205-312 (Jan.) 1944

- Anglo-American-Canadian Surgical Mission to Russia, July 1943. G. Gordon-Taylor.—p. 205.
Military Surgery in "Middle East." A. E. Porritt.—p. 208.
Compound Fronto-Orbital Fractures: 8 Cases. J. Schorstein.—p. 221.
Recurrent Hernia: Investigation of Causes of Recurrence and Application of Principles of Treatment of Primary Lesion. W. Patrick.—p. 231.
Case of Cerebrospinal Fever with Thrombosis of Right Axillary Artery. Followed by Gangrene of Right Arm, Necessitating Amputation. A. Levin and D. M. McElroy.—p. 240.
Humeroradial Synostosis. E. Frankel.—p. 242.
*Spinal Anesthesia in Treatment of Hirschsprung's Disease: With Reports of 12 Cases. Margaret Hawksley.—p. 245.
Fractures and Dislocations of Cervical Spine. F. Crooks and A. N. Birkett.—p. 252.
Severe Intestinal Hemorrhage Due to Myomatous Tumor of Jejunum, with Note on Bleeding Myomata of Small Intestine. G. Gordon-Taylor.—p. 266.
Multiple Cavernous Hemangiomas of Lungs Successfully Treated by Local Resection of Tumors. R. M. James.—p. 270.
Congenital Dislocation of Shoulder. G. Flavell.—p. 272.
Mesenteric Defects. E. G. Dolton.—p. 275.
Fractures of Triquetrum. J. G. Bonnin and W. P. Greening.—p. 278.
Ureteral Stricture with Perinephric Urinary Extravasation Caused by Metastases from Silent Carcinoma of Stomach. J. D. Fergusson.—p. 283.
Surgical Aspects of Sulfapyridine Anuria. J. M. Campbell.—p. 286.
Postoperative Respiratory Complications Following Unilateral Inguinal Herniorrhaphy in Wartime: Study of 438 Service Cases. B. G. B. Lucas.—p. 288.

Spinal Anesthesia in Treatment of Hirschsprung's Disease.—Hawksley reports 12 cases of Hirschsprung's disease in only 1 of which improvement did not occur. The colon and rectum are innervated by the two antagonistic halves of the autonomic nervous system, the sympathetic inhibiting colonic movements and initiating closure of the sphincters, the parasympathetic initiating intestinal movements and opening the sphincters. It is reasoned that an imbalance exists between the two halves of the autonomic system with overaction of the sympathetic, and it is suggested that by temporarily paralyzing the offending half the parasympathetic can exercise its function unchecked and that on recovery of the sympathetic the two halves are restored to normal balance. The object is to paralyze the anterior roots up to the fifth thoracic at least. Light nupercaine anesthesia 1:1,500 is used and found to be highly satisfactory. No basal premedication is given, but ephedrine is given intramuscularly just beforehand. The nupercaine, warmed to blood heat, is injected into the space between the second and third lumbar vertebrae with the child sitting up. The child

remains sitting for twenty seconds and is then placed on its back in the reversed Trendelenburg position, i. e. shoulders highest; this ensures that the bulk of the nupercaine will affect the anterior roots and will continue to travel upward. This position is usually maintained for five minutes, or until the child complains of pins and needles in its hands. The table is then tilted, bringing the shoulders downward, thus ensuring that the nupercaine will not continue to ascend. On the basis of observations in 12 cases, the author takes a hopeful view of the effect of spinal anesthesia in Hirschsprung's disease.

British Journal of Venereal Diseases, London

20:1-46 (March) 1944. Partial Index

- Drug Resistance in Gonorrhea. A. H. Harkness.—p. 2.
Is New Deal in Control of Venereal Disease Necessary?—1. I. N. O. Price.—p. 19.
Sulfamezathine in Gonorrhea in Male. A. G. Johnson.—p. 31.
Acute Encephalopathy During Neosarphenamine Treatment: Report on 6 Cases. W. A. Young and S. Gordon.—p. 34.
*Malarial Treatment in Earlier Stages of Neurosyphilis. F. G. Lescher and H. R. M. Richards.—p. 37.

Malarial Treatment in Early Neurosyphilis.—According to Lescher and Richards, malarial treatment for the earlier forms of neurosyphilis, before the onset of dementia paralytica, has not been extensively employed in Britain. The fact that there is a mortality rate of from 2 to 10 per cent associated with the malarial treatment of neurosyphilis may be responsible for the lack of enthusiasm. These figures have been estimated from results obtained in patients with dementia paralytica, which is a fatal disease. It was reasonable to suppose that if patients were treated with malarial fever before the onset of dementia paralytica the mortality rate should be much less than the figures quoted. The authors used malarial therapy in 20 cases of neurosyphilis before the onset of dementia paralytica. Care was taken that the patients were well nourished and were not suffering from infective or debilitating disease. Patients with gross infection of the bladder or in whom there was evidence of damage to the cardiovascular, renal or hepatic systems were excluded. The authors employed injection of malarial blood for the transmission of malaria. The highest temperature rarely exceeded 105 F. There was no difficulty in terminating the malarial infection. The patients were examined periodically after leaving the hospital. Further chemical treatment has been given when necessary. After combined malarial and chemical treatment clinical improvement has taken place and has been maintained in 15 cases together with improvement in the condition of the cerebrospinal fluid and in the blood serum reactions. The authors suggest that malarial therapy has a place in the treatment of selected patients with the earlier forms of neurosyphilis and that venereal disease clinics should be affiliated with hospitals where facilities for this treatment are available.

British Medical Journal, London

1:383-412 (March 18) 1944

- Hygiene Aspects of El Alamein Victory, 1942. H. S. Gear.—p. 393.
Study of Selected Group of Women Employed on Extremely Fine Work. Ida Mann and Dorothy Archibald.—p. 387.
Action of Electric Blankets. G. M. Brown and K. Mendelssohn.—p. 390.
Acute Nicotinic Acid Deficiency (Aniacinosis). B. Gottlieb.—p. 392.
Chest Screening in Antenatal Clinic. Rachel Frank and A. L. Jacobs.—p. 394.

1:413-446 (March 25) 1944

- Somatic Manifestations of Psychoneurosis. I. Douglas-Wilson.—p. 413.
Lung Abscess in Relation to Influenza Epidemic. E. Davis.—p. 417.
*Prognostic Value of Laboratory Investigations in Typhoid Fever. S. S. Bhatnagar.—p. 417.
Treatment of Ocular Infections with Penicillin. G. T. W. Cantell.—p. 420.
Control of Very Severe Diabetes by New Arrangement of Insulin. R. D. Lawrence and W. Oakley.—p. 422.

Prognostic Value of Laboratory Investigations in Typhoid.—According to Bhatnagar, laboratory investigations in typhoid are usually employed for the confirmation of clinical diagnosis, either directly by the isolation of the infecting organism from blood, urine or feces, or indirectly by the estimation of antibody production, chiefly Vi and O agglutinins. In military hospitals in India blood cultures in the early stages, agglutinations throughout the course of infection and collection of evidence for the excretion of micro-organisms, even during convalescence, are usually performed.

valescence, comprise the routine procedure. Not only was it thus possible to gain an insight into the struggle between host and parasite, but specific antityphoid serum therapy could also be placed on a more satisfactory basis. Prognostic inferences were drawn from a study of 280 cases of typhoid in which laboratory investigations were carried out throughout the course of infection. The cases were divided into six groups: (1) the simple type, which presents the textbook description of the disease, (2) the ambulatory type, (3) the toxic type, (4) the form with prolonged pyrexia, (5) the embolic type and (6) the relapse type. A close association existed between the prognostic outlook and the results of laboratory investigations. It was found that if Vi antibody was present early in a sufficiently high titer (50 to 250) and this titer was maintained over a number of days the course would most likely be short (simple type). In the embolic type, in which the Vi antibody was either absent or seldom above 10 to 20, improvement was preceded by a rise in Vi titer. The prolonged pyrexia type resolved only when a sustained Vi titer was recorded. In the case of remittent fever, absence of Vi antibody or the lack of an appropriate rise in O agglutinins does not exclude the possibility of typhoid. An abnormal rise in O agglutinins was observed in the toxic type, the titer varying from 2,000 to 20,000. Since a considerable fall in the O titer of serum always preceded recovery, the high rise of O agglutinins must be regarded as pathologic. In the ambulatory type complete rest and noninterference with the rise in temperature appear to be of the greatest importance in the second stage of the disease. Relapses occurred in 6 per cent of the series. Unusual laboratory findings appeared to be associated with the possibility of relapse. An early rise in Vi agglutinins should be expected only in mild cases.

Edinburgh Medical Journal

51:65-112 (Feb.) 1944

- Koilonychia and Polycythemia Vera. A. J. Glazebrook.—p. 65.
*Symptomatic Hemolytic Anemia: Report of 4 Cases. L. J. Davis.—p. 70.
Liver Function in Health and Disease. O. A. Trowell.—p. 84.
Tubercle Bacilluria in Child. W. T. Munro.—p. 101.

Symptomatic Hemolytic Anemia.—Davis reports 4 cases of symptomatic hemolytic anemia. The underlying pathologic conditions were respectively carcinoma of the tail of the pancreas, reticulosis or Hodgkin's disease (2 cases) and subleukemic myeloid leukemia. Acceptance of the diagnosis of symptomatic hemolytic anemia depends on evidence that the anemia is of hemolytic origin and that its onset was preceded by the underlying primary pathologic condition. The recognition of excessive red cell destruction in patients suffering from neoplastic and allied conditions may present difficulties. The least equivocal of these criteria are the demonstration of excessive excretion of fecal urobilinogen, and in cases in which the hemolysis is intravascular the demonstration of methemalbuminemia or hemoglobinuria. The mechanism of hemolysis is obscure in symptomatic hemolytic anemia and may vary according to the nature of the primary pathologic process, as do also the prognosis and treatment. The author has no knowledge of whether hemolytic anemia has been observed in cases of carcinomatous growths which were subsequently successfully extirpated or in cases of leukemia which proved amenable to radiation therapy. In 1 of the reported cases the hemolytic process subsided following the institution of radiation therapy directed against the underlying condition of reticulosis.

Lancet, London

1:329-360 (March 11) 1944

- Psychologic Medicine: Current Methods of Treatment. I. Skottowe.—p. 329.
Liver Function After Burns in Childhood: Changes in Levulose Tolerance. S. L. Rae and A. W. Wilkinson.—p. 332.
Agranulocytosis and Aplastic Anemia After Arsphenamines: Report of 6 Cases. J. W. Ferguson.—p. 334.
*Sliding Graft for Ununited Fracture of Tibia. B. H. Burns and L. S. Michaelis.—p. 337.
Trypanosomiasis Treated with Pentamidine: Fatal Case. G. McComas and N. H. Martin.—p. 338.

Sliding Graft for Ununited Fracture of Tibia.—Burns and Michaelis state that the sliding graft with metal fixation is not as popular as it deserves to be. The sliding graft has been their standard method and has given satisfactory results

in all but 1 of the 26 consecutive cases in which it has been used since June 1940. The use of the sliding graft is particularly applicable to the tibia, for the size and shape of the bone allow a graft to be cut bulky enough for its purpose, while incision and exposure of the bone presents no difficulties or disadvantages. A long skin incision is made about $\frac{1}{2}$ inch lateral to the anterior border of the tibia. It is curved inward at each end. The periosteum is stripped from the subcutaneous surface, a 5 to 6 inch graft is cut in the bone above the level of the fracture and half that length of bone is removed from the subcutaneous surface below the fracture. The graft can be slid down as far as necessary. When the fracture is near the upper end of the tibia it is necessary to slide the graft from below upward. After the graft has been fitted it is fixed by the insertion of four to six vitallium screws. In no instance was the shortening more than $\frac{3}{4}$ inch. The sliding graft is not suitable for gaps larger than this. In infected cases operation was not done until at least three months after the cessation of discharge. Of the 26 fractures in this series 21 were united in three to four months, 3 at five months and 1 at seven months; 1 failed to unite. The authors conclude that, of the methods of grafting for nonunion of the tibia, sliding inlay, fixed with vitallium screws, is the simplest; and it does not necessitate the borrowing of bone from the other leg.

1:361-392 (March 18) 1944

- Surgery in the Field. G. Blackburn.—p. 361.
*Absorption and Excretion of Sulfonamides in Children. Margaret W. Stanier and T. Stapleton.—p. 366.
Confusional Psychoses Following Sulfaguanidine Therapy. J. W. Crofton and G. Diggle.—p. 367.
*Tobacco Smoking and Pulmonary Complications After Operation. H. J. V. Morton.—p. 368.
Extensive Burns Treated in an Open Irrigation Chamber. H. M. Goldberg.—p. 371.
Unusual Case of Chronic Meningococcal Bacteremia, with Note on Nomenclature. L. Martin and B. Dansie.—p. 372.

Absorption and Excretion of Sulfonamides in Children.

—It has been suggested that a drug which is only poorly absorbed from the lumen of the intestine would be more effective than one which is well absorbed, because there would be a higher concentration of the drug in the feces. The medical research council recommended sulfaguanidine and succinylsulfathiazole for the treatment of intestinal infections because only 25 to 50 per cent of the former and about 5 per cent of the latter were stated to be absorbed. Pauley found that sulfapyridine had advantages over sulfaguanidine, suggesting that it is not the concentration of the drug in the intestinal contents but the concentration in the blood which is the important factor. During an outbreak of Sonne dysentery in a children's ward, Stanier and Stapleton attempted to control the epidemic by giving each child a forty-eight hour course of either sulfaguanidine or succinylsulfathiazole. They used the urinary excretion as a means of comparing the various amounts of the different drugs absorbed. They found that approximately equal proportions of sulfathiazole and sulfaguanidine are excreted in the urine after the administration of similar doses of the drugs. Only a small proportion of succinylsulfathiazole is excreted in the urine. The blood levels obtained with sulfathiazole are slightly higher than those obtained with sulfaguanidine; this may be partly because sulfathiazole is excreted slightly more slowly than sulfaguanidine. In the light of these observations it might be expected that succinylsulfathiazole is of most value as a prophylactic against bacillary dysentery, but possibly not to be as effective as either sulfathiazole or sulfaguanidine in the treatment of established cases. When using either sulfathiazole or sulfaguanidine it is important to ensure an adequate urinary output, and with sulfathiazole the urine should be kept alkaline.

Tobacco Smoking and Pulmonary Complications After Operation.—Morton investigated the incidence of bronchitis, atelectasis and bronchopneumonia after abdominal operations and "gas-oxygen-ether" in 1,257 adults. The use of omopon-scopolamine, a mild respiratory depressant, for premedication was associated with a slight but not significant increase in pulmonary complications, as compared with the use of atropine alone, which has no depressant effect. The combined figures for all types of abdominal operations show that the morbidity rate for smokers taking more than ten cigarettes a day is about

six times that for nonsmokers. Smokers are more likely to develop complications associated with serious constitutional disturbance. The sex incidence ratio of pulmonary complications is explained. When abdominal operations are contemplated, it is advisable for smokers to stop or reduce their smoking as a precaution against pulmonary complications.

1:393-424 (March 25) 1944

- *Corneal Vascularization in Nutritional Deficiency. T. K. Lyle, T. F. Macrae and P. A. Gardiner.—p. 393.
Anesthesia in Fractures of Jaws. R. P. W. Shackleton.—p. 396.
*Neurobacillosis in Man. G. B. Forbes and J. C. Goligher.—p. 399.
Pathogenesis of Sulfonamide Neutropenia. R. G. Park.—p. 401.

Corneal Vascularization in Nutritional Deficiency.—

Many students of nutrition regard corneal vascularization as a specific sign of riboflavin deficiency. The relationship between corneal vascularization and nutritional status in Royal Air Force personnel has been investigated in the past two years in twenty-two localities. In some localities the standard of feeding was good, while in others it was less satisfactory either because of lack of local supplies or because importation of some desirable foodstuffs was impossible. Nearly 4,000 subjects have been examined, and at some stations the effects of supplementing the diet have been studied. Many of the men who had excellent diets had blood vessels on the cornea, and subjects with much corneal vascularity did not always improve when the diet was supplemented. Vascularity of the cornea is apparently not necessarily an evidence of deficiency in the diet. On the other hand, there was little corneal vascularity where the food was good and more where food was less satisfactory. The average degree of corneal vascularity in a group of subjects is therefore a reliable index of their general state of nutrition. Riboflavin is not the only nutrient concerned in the prevention of corneal vascularization. These experiments suggest that other factors present in fruits and vegetables influence this condition more than riboflavin.

Neurobacillosis in Man.—According to Forbes and Goligher the term neurobacillosis covers a wide variety of animal diseases due to infection with a gram negative nonsporing filamentous anaerobe. An organism of this description has been recovered from the caseonecrotic lesions of equine bacillary necrosis, calf diphtheria, "foot rot" in sheep and pigs, labial necrosis in rabbits and hepatic necrosis in cattle. In all of these the basic pathologic process is the same: there is a local lesion with a tendency to necrosis, and often metastatic abscesses develop in lungs and liver. The taxonomic position of the causative organism has not been definitely established, and it is known by many names. The authors prefer the term *Bacterium necrophorum*. The organism rarely attacks human beings. Although it has been recovered from the healthy human colon and also from the colon in ulcerative colitis, few cases are on record in which it has been clearly pathogenic to man. The authors report that a man aged 24 sustained an open fracture of the leg and various minor wounds during a naval engagement. After a month the fracture wound was still heavily infected, and signs of septicemia developed. Chemotherapy was ineffective, and the leg was amputated. Aerobic blood culture was negative, but a gram negative filamentous organism resembling *Bact. necrophorum* was isolated from pyemic abscesses and was later grown anaerobically from the blood. On the patient's death, after nearly twelve weeks' illness, multiple pyemic abscesses were found in the lungs and under the skin. The source of infection in the case recorded is a matter for conjecture. At no time during the history of the wound was the patient exposed to an obvious extraneous source of infection. He was on a destroyer at sea when the wound was received.

Medical Journal of Australia, Sydney

1:165-188 (Feb. 26) 1944

- Wheat, Flour and Bread, with Special Reference to Enriched Flour. R. A. Bottomley.—p. 165.
Seminal Vesiculitis. W. J. Close.—p. 170.

1:189-212 (March 4) 1944

- Treatment of Malaria. E. T. Brennan.—p. 189.
Treatment of Compound Fractures of Femur in Battle Casualties at General Hospital. E. F. West.—p. 195.
Abdominal Diagnosis. A. E. Lee.—p. 196.

Praxis, Bern

32:611-626 (Aug. 26) 1943

- *Prophylaxis Against Typhoid, Paratyphoid and Dysentery: Measures to Be Taken with Carriers. R. Regamey.—p. 611.
Doctor's First Aid Kit. E. A. Hafner.—p. 616.
Diagnosis and Therapy of Otitis Media. L. Rüedi.—p. 617.

Measures to Be Taken Against Typhoid Carriers.—

Regamey discusses measures to be taken against typhoid carriers with consideration of the conditions existing in Switzerland. He recommends the creation of an office of control of carriers by the cantonal authorities. Two types of carriers are difficult to detect: these are (1) the mildly infected, in whom the disease takes an atypical course and who may not come under the care of a physician, and (2) the healthy carriers without previous symptoms. The author maintains that there is invariably a carrier of germs at the basis of all typhoid, paratyphoid and dysentery cases. Every new infection must be made the object of an investigation until the responsible carrier is detected. The Gruber-Widal reaction gives uncertain results. The search for Vi antibodies in the serum is more fruitful; the author found it particularly useful in the examination of large groups (asylums). There is no treatment that can be recommended to the carrier with certainty of success. The author mentions the use of arsphenamine, vaccines, phages, chemotherapy with sulfonamides, acriflavine hydrochloride, magnesium sulfate, zinc sulfate and others. The parasites may disappear spontaneously. Carriers whose occupation involves contact with foods must change their occupation. If this entails financial loss, the office of control should see to it that suitable indemnity is granted. This office should also punish infractions which endanger public health. Other tasks of the office of control are the education and bacteriologic control of the carrier and the hygienic supervision of persons in the environment of the carrier.

Revista de la Asoc. Méd. Argentina, Buenos Aires

57:925-980 (Nov. 15) 1943. Partial Index

- *Tumors of Cauda Equina: Clinical Diagnosis from Untractable Sciatica and Operation. J. Diez.—p. 925.
Fatal Pulmonary Hydatid Embolism Due to Rupture of Multivesicular Cyst of Liver. O. A. Itoiz, A. Marano and R. F. Matera.—p. 933.
Cirrhosis and Hydatid Cyst of Liver. A. Marano and R. I. Latienba.—p. 960.
Therapy of Open Fracture: Advantages of Immobilization. A. Bonadeo Ayrolo.—p. 961.

Tumors of Cauda Equina.—Diez discusses the importance of unilateral or bilateral, intractable sciatica for an early diagnosis and early successful operation on tumors of the cauda equina. Pain, as the only symptom, may begin suddenly, disappear for a long time and reappear with a progressive intractable course or it may be progressive and intractable from the beginning. The differential diagnosis of sciatica caused by tumor from rheumatic and arthritic sciatica and sciatica caused by protrusion of the intervertebral disk or by hypertrophy of the ligamentum flavum is made by the chemical examination of the cerebrospinal fluid, by manometric determination and roentgenogram examination of the spine after subarachnoid injection of iodized poppyseed oil.

Semana Médica, Buenos Aires

51:49-96 (Jan. 13) 1944. Partial Index

- *Pulmonary Embolism Complicating Puerperal Thrombophlebitis. R. Dubrovsky and E. A. Linzoain.—p. 64.
Traumatic Rupture of Spleen. C. A. Castro.—p. 66.

Pulmonary Embolism Complicating Puerperal Thrombophlebitis.—Dubrovsky and Linzoain classify pulmonary embolism complicating puerperal thrombophlebitis into (1) hyperacute, (2) acute, (3) subacute and (4) moderate. In treatment of the last three types they employ intravenous injections of papaverine. A solution containing 0.03 Gm. of papaverine hydrochloride per cubic centimeter is slowly injected. From 2 to 7 cc. of this solution is administered to persons with the acute and subacute types and half that dose to persons with the moderate type. An intramuscular injection of from 0.01 to 0.015 Gm. of morphine hydrochloride is administered before or immediately after injection of the papaverine to persons with the acute type and half the dose to persons with the subacute type. These injections can be repeated if necessary.

Book Notices

Medical Physics. Editor-In-Chief: Otto Glasser, Ph.D., Head, Department of Biophysics, Cleveland Clinic Foundation, Cleveland. Buckram. Price, \$18. Pp. 1,744, with illustrations. Chicago: Year Book Publishers, Inc., 1944.

Although some of the earliest investigators in the field of medicine were physicists, physical agents were not used extensively for therapeutic and diagnostic purposes until recently. This volume covers briefly many applications of the physical principles used in various branches of medicine. The book is well illustrated and is carefully edited. Each chapter contains an extensive list of references covering the sources of material for the chapter or giving reference for additional reading matter. The classified table of contents contains sections on anatomy, bacteriology, biometrics, biophysics, dermatology, hematology, medicine, neurology, nuclear physics, ophthalmology, optics, orthopedics, otolaryngology, pathology, pediatrics, photography, physical chemistry, physical therapy, physics (instruments and methods), physiology, radiology, surgery and urology. In each of these categories the part played by physics is considered. Both diagnostic and therapeutic devices are given careful attention, and all applications of physics in medicine are dealt with adequately. One does not have to be a mathematician to derive useful information from the book. Mathematics is used, but the mathematical formulas are accompanied by word descriptions. There are ample diagrams, charts and tables to bring out the importance of the subject matter at hand. In short, the book presents the elements of physics effectively for specialists practicing physical medicine and radiology and serves as an adequate reference handbook for the physician in other fields.

Persistence and Change in Personality Patterns. By Katherine Elliott Roberts and Virginia Van Dyne Fleming. Monographs of the Society for Research in Child Development, Volume VIII, No. 3 (Serial No. 36). Paper. Price, \$1.50. Pp. 206, with 25 illustrations. Washington, D. C.: Society for Research in Child Development, National Research Council, 1943.

This monograph attempts to answer the question "Are human traits fixed, or are they modified by life experiences?" The material dealt with consists of the life histories of 25 women interviewed in the Advisory Service for College Women of the Merrill-Palmer School in Detroit. Part I presents three of these histories (original "average length 90,608 words") in condensed novelette form, but, possibly because the authors themselves did not do the interviewing, the published anamneses show little insight into the nuances of individual and social development of their subjects. Substituted are the usual clichés about "feelings of inferiority," "difficult relationships," "emotional outlets" and other phrases used as secondary evaluations of the original biographic data. From such histories, nevertheless, various "traits" such as "shyness" and "strong ego drive" are then further abstracted, coded, tabulated and analyzed for the factor of "persistence," which admittedly varied from case to case. Despite the methodologic tenuousness of such procedures, the authors then construct tables to show that traits such as "seeks help when needed" rate only 11 per cent persistent, whereas "has a few friends in whom she confides" is 100 per cent constant, presumably up to the time the subject confided in the interviewer. The authors conclude that "there seems to be a nuclear personality pattern for every individual . . . and around this nucleus other traits and attitudes shift as life proceeds . . . even the nuclear pattern may change when conditions are changed radically." To answer the subsidiary question "Do homes matter?" the authors classify their subjects into those from "happy" homes (5) "unhappy" homes (4) and "medium" (16), according to criteria like "gets along with parents" vs. "thinks mother considers doing things for children too much trouble." The authors conclude, again somewhat predictably, that homes matter.

Similar revelations by tabular divination are then related to chapter headings such as "Is Personality Related to Marital Happiness?" "Personality and Religious Values" and "Social Adjustment and Personality." There is a fifty-six page appendix of tabular data without specific or implied qualifications to the effect that these "data" really represent the authors' abstracted opinions of the interviewers' recorded opinions of the

subjects' expressed opinions of themselves. Characteristic also is the inclusion of several elementary textbooks and three dictionaries in the bibliography of twenty-nine titles, with almost no reference to the rich literature of psychoanalytically and clinically oriented studies in the field.

The main defects of this monograph are those of the traditional academic approach to personality: methodologic devotions to questionnaire "tests," the tabulation of "traits" or other vague generalities and the statistical derivation of the same pedantries that were originally injected into the material. Despite the undoubted sincerity of its composition, therefore, this monograph is recommended only as a documentary case study of a rapidly passing preoccupation with the trite and the sterile in our concepts of personality.

The American Illustrated Medical Dictionary: A Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, Etc., with the Pronunciation, Derivation, and Definition. By W. A. Newman Dorland, A.M., M.D., F.A.C.S., Lieut.-Colonel, M. R. C., U. S. Army. With the collaboration of E. C. L. Miller, M.D., Medical College of Virginia. Twentieth edition. Fabrikoid. Price, \$7; Thumb indexed, \$7.50. Pp. 1,668, with 885 illustrations. Philadelphia & London: W. B. Saunders Company, 1944.

This is a complete revision of this dictionary, involving changes on every page. Many hundreds of new words have been added, including all of the new fields at present associated with medicine, such as mycology, and all of the new technics that have been developed in recent years. Especially important as a feature of this edition is the incorporation of the terminology of the Standard Nomenclature of Diseases and Operations. The definitions in each instance and the descriptions of operations appear under the terms preferred by the Standard Nomenclature. This volume, as is apparent from its preface, represents today an effort in which many of the leading institutions devoted to medical education and medical publication of the United States cooperate. Thus the assistance is recorded of the editorial staff of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the editorial staff of the Mayo Clinic and the staffs of the libraries of the New York Academy of Medicine and of the College of Physicians of Philadelphia. Furthermore, a number of individuals have cooperated by submitting some new terms much used in medicine. The present edition contains almost 1,700 pages, almost a thousand illustrations and great numbers of useful tables, including finally a complete dosage table.

Synopsis of Diseases of the Heart and Arteries. By George R. Herrmann, M.S., M.D., Ph.D., Professor of Medicine, University of Texas, Galveston. Third edition. Fabrikoid. Price, \$5. Pp. 516, with 107 illustrations. St. Louis: C. V. Mosby Company, 1944.

The appearance of a third edition of this excellent synopsis is welcome. The contents have been considerably revised and brought up to date, with emphasis on the problems arising from the war. The order of the chapters has been shifted, and four new chapters have been added on nervous disorders with cardiac manifestations, blood pressure abnormalities, essential hypertension and general systemic types of heart disease. The new arrangement and the new chapters have greatly improved the book. The reader for whom this volume is intended will derive great benefit from its perusal, but the reviewer believes that there is undue repetition of material in several places, the avoidance of which would considerably strengthen the book. It would also permit expansion of the handling of some topics which have been pruned to barrenness, a failing common to all synopses.

The Control of Cross Infection in Hospitals. (Memorandum Prepared for the Committee on Preventive Medicine of the Medical Research Council by the Sub-Committee on Cross Infection in Hospital Wards.) Medical Research Council War Memorandum No. 11. Paper. Price, 15 cents; 6d. Pp. 34, with 6 illustrations. New York: British Information Services. London: His Majesty's Stationery Office, 1944.

The topics discussed are prevalence and consequences of cross infection, sources and modes of infection, the prevention and control of cross infection, and procedure following the occurrence of infection in a ward. Disinfection and sterilization, special rules and precautions, and a course of bacteriology for nurses are described in appendixes. There is a useful list of references. The memorandum will be helpful in the working out of efficient procedures to control cross infection in hospitals.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. *THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CONTAMINATION OF BEVERAGES AND FOOD WITH LEAD

To the Editor:—Are there any reports in the literature of lead poisoning from containers in which milk and water are boiled or other foods cooked? What is the present belief regarding the hazards of using pewter as a container for food or drinking water?

Rudolfo Perez de los Reyes, M.D., Havana, Cuba.

ANSWER.—There are many references in medical literature to widely varied sources of contamination with lead of milk and other beverages including water, as well as foods. However, reports of cases of lead poisoning are relatively infrequent and are not always substantiated by acceptable evidence. No doubt the comparative rarity of such cases is due to the fact that these contaminations are usually small, and, except in the case of certain community sources of water supply, are spotty in their occurrence and so do not result in regularly repeated exposures to hazardous dosages. Milk and many other foods take up lead from containers that are soldered on the inside and from utensils coated inside with tin-lead alloys. The use of new skillets coated thinly with tin-lead alloys is a particularly fruitful source of contamination, but their coating of tin (containing lead) tends to be melted off soon, and the remainder becomes coated with a film which reduces the contact with the food. Lead glazed containers also may contaminate food and beverages that have solvent properties. Old pewter of high lead content is generally unsatisfactory as a container for beverages, especially those of high acid content, although here too the surface becomes coated and resists solution to a considerable degree if it is not cleaned frequently with abrasives. Much of the modern pewter has a low or negligible lead content, but unfortunately one cannot always be certain that this is the case.

The important consideration in this entire problem is the regular daily dosage of lead in the food and beverages from all sources. If this is much in excess of 0.5 mg. of lead over any considerable period of time (months) in the case of adults, it constitutes a potential hazard. In the case of children the daily dosage should be limited to a somewhat lower level. Poisoning does not occur in either adults or children from occasional ingestion of considerably larger amounts or from regular ingestion of amounts of the order of magnitude of 0.2 to 0.3 mg. a day in the food and drink.

SULFONAMIDE THERAPY AND WASSERMANN REACTION

To the Editor:—Are the sulfonamides known to cause false positives in the Kahn and Wassermann serologic tests? I have in mind several instances in which positive reactions have occurred in patients receiving sulfonamide treatment, and the positiveness seems more likely due to uncomplementary reaction than to true social diseases. I would appreciate any enlightenment you may have to offer on this point.

William A. Voke, Medical Technologist, Tucson, Ariz.

ANSWER.—The observation that sulfonamide therapy may cause positive serologic reactions for syphilis has not been recorded by others. It is known, however, that anticomplementary reactions may occur during the course of certain infectious diseases, nonsyphilitic in origin. As to the observations in question, one would like to know if tests were carried out just prior to the administration of the sulfonamides, what infectious diseases were being treated and whether the patients were quite afebrile. It is suggested that the foregoing observations should be repeated with a series of suitable control tests; that is, tests performed just prior to sulfonamide therapy, during therapy, and several days after therapy has been discontinued.

REMOVAL OF CLAMP FROM UMBILICAL CORD

To the Editor:—How long after the application of a clamp (e. g. Kane type) to the cord of the newborn can it be safely removed?

M.D., New York.

ANSWER.—It has been demonstrated that no more bleeding occurs from the cord after a clamp has been applied to it for ten minutes. However, cord clamps can be removed safely at the end of twenty-four hours.

WARTS IN CHILDREN

To the Editor:—A young girl has numerous verrucae covering her lips and the inner sides of her cheeks. She has always been in excellent health; she has had none of the childhood diseases except measles. Her Wassermann reaction is negative, blood count within normal limits and urinalysis negative. I am unable to find anything in the books on the diseases of children covering the subject and would appreciate it if you would help me out in suggestions as far as treatment is concerned. The lesions are too numerous to be treated by cautery.

M.D., North Carolina.

ANSWER.—There is no description of the type of warts which this young patient has, but if these are the usual multiple flat warts seen in children it is found that such cases will not infrequently respond to the internal administration of mercury. Yellow mercurous iodide does well, and the dosage is to be governed in general by the age. It often seems advisable to increase the dosage gradually to the point where symptoms are felt from it, such as slight cramps or diarrhea, and the dosage maintained just below the amount necessary to produce these symptoms. The urine should be watched, of course, during this time. If no result on the warts is obtained within four to six weeks, it is inadvisable to continue this medication further.

Fractional doses of radiation with a thin aluminum filter have sometimes been helpful, but the dose should be carefully calculated and the treatment given by one with satisfactory experience in this field of roentgen therapy.

ERGOTAMINE TARTRATE FOR MIGRAINE

To the Editor:—Are there any harmful effects known to develop as a result of the prolonged use of ergotamine tartrate for the relief of migraine headaches?

L. J. Alger, M.D., Grand Forks, N. D.

ANSWER.—There have been no serious ill effects reported in the literature from the prolonged administration of ergotamine tartrate taken by patients with migraine. The drug, however, must be used with caution and it is advised to give not more than 0.5 mg. subcutaneously at a time and that such a treatment should not be repeated more than three or four times a week. It is unlikely that this would be the case, for most patients with migraine do not have recurrence of their attacks more often than every four to six weeks. If ergotamine tartrate is given more frequently than needed, the patient may have signs of inadequate peripheral circulation. The various symptoms from overdosage and the complications that may ensue have been discussed by von Storch. If huge amounts of ergotamine tartrate are given at one time, death may follow. Such a case was reported by Jervis and Kindwall.

References:

Von Storch, T. J. C.: *M. Clin. North America* 25: 1317 (Sept.) 1941.
Jervis, G. A., and Kindwall, J. A.: *Am. J. Psychiat.* 98: 650 (March) 1942.

ALLERGY TO TREE POLLENS IN TEXAS

To the Editor:—How long will the trees in Texas which cause spring allergy be active? A man suffers acutely at present with sneezing and eye irritation.

M.D., Texas.

ANSWER.—In the San Antonio area the cedar trees start blooming early in December and continue until rather late in February. Then the other trees begin blooming and one or another is blooming until early April, by which time it is all over. There is no one tree which blooms through all this period. The elms usually begin while the cedar is still blooming; then the hackberry, oak, cottonwood and others come on almost simultaneously. With the exception of cedar which has a rather long blooming season, the pollination time of the trees is short, as a rule not more than three or four weeks. The combined tree season, however, occupies a period of about four months.

H 11 FOR CANCER

To the Editor:—A patient has brought to me a clipping from a British newspaper in which reference is made to a treatment for cancer, H 11, which has been developed at the Hosa Research Laboratories, London. Will you kindly give me any information that you may have regarding this substance?

M.D., Ohio.

ANSWER.—The clinical use of an alcoholic fraction of urine known as H 11 in the treatment of malignant tumors has been advocated by Thompson on the basis that this preparation has the property of arresting experimental tumor growth in mice. The preliminary evidence presented by this author in support of his contention is far from convincing. Moreover, the anticarcinogenic property of H 11 has not been confirmed by three different groups of investigators. Its clinical use is thus unwarranted at present.

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STUDIES ON THE DISTRIBUTION OF PENICILLIN IN THE EYE

AND ITS CLINICAL APPLICATION

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AND

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The remarkable success obtained in the treatment of severe infections with penicillin has naturally called attention to possible applications in ophthalmology. In general, the drug has proved to be very effective in the treatment of infections produced by *Staphylococcus aureus*, the pneumococcus, the hemolytic streptococcus, the gonococcus and the meningococcus. With the exception of the last two mentioned organisms, penicillin is relatively ineffective against gram negative bacteria. Encouraging results already have been reported following its employment in cavernous sinus thrombosis, corneal ulceration, conjunctivitis,¹ orbital and facial cellulitis² and acute gonorrheal ophthalmia.³

In corneal infections experimentally produced with *Staphylococcus aureus*, Robson and Scott⁴ found this drug to be very effective if applied within a reasonably short time. From these data they recommend that the local use of penicillin be given a clinical trial. Another investigator, von Sallmann,⁵ produced intraocular infections in rabbits by introducing pneumococci and *Staphylococcus aureus* into the anterior chamber. It was very effective against the pneumococcus and *Staphylococcus aureus* but ineffective in combating the ensuing endophthalmitis after intralenticular injections of *Clostridium welchii*.

The only work that has been done on the penetration and distribution of penicillin has been its determination in a few of the body fluids. Florey and his co-workers have demonstrated its absorption and excretion in blood and urine. They found penicillin in the whole blood, bile and saliva but none in the pancreatic juice or tears of cats given the substance intravenously. They have shown that penicillin does not become inactivated when incubated for three hours with slices of kidney, spleen, brain, muscle, lymph gland, lung and intestine

of rabbits. Rammelkamp and Keefer⁶ have investigated the absorption and excretion of penicillin after intravenous, intramuscular and subcutaneous injections. They found that penicillin failed to penetrate red blood cells in significant amounts (less than 10 per cent of the plasma concentration) and that it failed to enter the spinal fluid, tears or saliva. Von Sallmann and Meyer,⁷ studying the penetration of the drug after local and systemic application, demonstrated penicillin in the aqueous humor; it was particularly high after iontophoresis. In two tests the vitreous humor was negative. When the administration was systemic, paracentesis led to a manifold increase in the secondary aqueous.

Since the efficiency of a chemotherapeutic agent depends not only on its potency but also on its diffusibility and concentration in the infected part, it was considered desirable that investigation be undertaken to secure information on the distribution of penicillin in the eye and other organs and body fluids.

EXPERIMENTAL STUDIES

A. Distribution After a Single Massive Dose.—General anesthesia was induced in dogs by the intravenous injection of sodium amytal (0.045 Gm. per kilogram of body weight). Then 12,800 units of penicillin per kilogram of body weight in a highly concentrated form (20,000 units per cubic centimeter solution) was injected intravenously. At specified time intervals blood samples were withdrawn, eyeballs enucleated and body tissues removed for analyses. Caution must be exercised in interpreting results, since the number of experiments performed was small. After removal of the eyeball the aqueous humor was aspirated and the globe dissected into the following components: lens, vitreous humor, cornea, sclera and chorioretinal layer. All tissues but the vitreous humor were immediately weighed and transferred to mortars, where they were thoroughly ground with sand mixed with a minimum volume of saline solution. It was found that no appreciable differences were obtained if the tissues were ground after rapid freezing or prepared in the usual manner. Each mixture was transferred quantitatively to a 15 cc. tube and centrifuged from five to ten minutes. The supernatant liquid and washings were combined and brought up to a specified volume. Aliquot portions were removed and assayed by the method developed by Florey and his associates. The Oxford writers admit that this test has a ± 25 per cent error, but they doubt if other methods are more accurate. They claim that their method has the advantage of being many times more rapid and can be carried out with small amounts of fluid. The vitreous humor

The laboratory investigation was carried out with the aid of Dr. K. K. Chen and his associates at the Lilly Research Laboratories, Eli Lilly and Company, Indianapolis.

1. Abraham, E. P.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G.; Jennings, M. A., and Florey, H. W.: Further Observations on Penicillin, *Lancet* 2: 177, 1941.

2. Herrell, W. E.: Gramicidin and Penicillin, *Surg. Clin. North America* 23: 1163, 1943.

3. Griffey, W. P.: Penicillin in Treatment of Gonorrheal Conjunctivitis, *Arch. Ophth.* 31: 162 (Feb.) 1944.

4. Robson, J. M., and Scott, G. I.: Local Chemotherapy in Experimental Lesions of the Eye, *Lancet* 1: 100, 1943.

5. von Sallmann, L.: Penicillin and Sulfadiazine in the Treatment of Experimental Intraocular Infection with Pneumococcus, *Arch. Ophth.* 30: 426 (Oct.) 1943; Penicillin and Sulfadiazine in the Treatment of Experimental Intraocular Infections with *Staphylococcus Aureus* and *Clostridium Welchii*, *ibid.* 31: 54 (Jan.) 1944.

6. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Distribution of Penicillin, *J. Clin. Investigation* 22: 425, 1943.

7. von Sallmann, L., and Meyer, K.: Penetration of Penicillin into the Eye, *Arch. Ophth.* 31: 1 (Jan.) 1944.

(stirred vigorously until it became fluid), aqueous humor, blood and bile were tested without dilution.

Penicillin was found to penetrate into the eyeball with great rapidity. After fifteen minutes the penicillin content was found to be at its highest peak of concentration in the chorioretinal tissues and extraocular muscles. After the initial sharp rise, the aqueous humor and the relatively poorly vascularized conjunctiva and sclera showed a slow continuous increase until the end of the first hour. The blood penicillin was at its highest level directly after the injection and fell immediately. The concentration of penicillin was found to be in the following order: extraocular muscles, sclera, conjunctiva, blood, chorioretinal layer and the aqueous humor. The penicillin content of the vitreous humor and cornea was always less than 0.2 Oxford unit per gram of tissue, while the lens was consistently negative. The tears of dogs, contrary to the negative findings of Florey and his associates on the cat and of Rammelkamp and Keefer on man, showed a moderate concentration of penicillin (3.19 at fifteen minutes). The drug concentration in those tissues and fluids attaining the highest peak fell the most precipitously. Thus, in the first fifteen minutes the penicillin content of the extraocular muscle reached a concentration of almost 15 units per gram of wet weight, while at the end of sixty minutes it fell to about 6 units. On the other hand the penicillin content per gram of wet weight of the chorioretinal layer was 2.05 units in fifteen minutes and 1.39 units at the end of sixty minutes. At the end of three hours penicillin was completely absent from the blood, but the ocular fluids and media with the exception of the crystalline lens still showed a trace of this substance.

B. Penetration into the Eye After the Parenteral Administration of Penicillin in Approximate Clinical Doses.—Instead of employing a dosage far exceeding that employed clinically, dogs were given 1,500 units of penicillin per kilogram of body weight either by a slow intravenous drip over a period of five or six hours or divided into three intramuscular injections at two hour intervals. The blood tested at hourly intervals throughout the experiment was always negative. Likewise, the ocular fluids and tissues tested at the end of three, four, five and six hours were entirely negative with two exceptions, in which a trace was found: one was a sample of conjunctiva examined at the end of six hours of a continuous intravenous administration, and the other exception was a specimen of aqueous humor aspirated immediately after the third intramuscular injection.

C. Distribution of Penicillin in Eye After Subconjunctival and Topical Administration.—If penicillin can readily reach the ocular media and tissues following its subconjunctival and topical application, a more effective and economical method of therapy might be achieved by local application rather than by intravenous administration. Since the effective dose for various infections is yet unsettled and the dosage of penicillin largely arbitrary, it was advisable to determine the tolerance of the ocular tissues to the subconjunctival and topical administration of penicillin.

The application of a 5 per cent solution of metycaine as a surface anesthesia preceded the subconjunctival injection of penicillin in rabbits. Penicillin in 500, 1,000, 2,500 and 5,000 units dissolved in 0.25 cc. of isotonic solution of sodium chloride was injected. With the exception of the eyeball receiving the 5,000 unit

injection all globes showed a decreased amount of swelling in one hour, and the eyes were normal at the end of twenty-four hours except for the hyperemia at the point of injection. With the injection of 5,000 units, chemosis was pronounced at the end of one hour but at the end of twenty-four hours was greatly reduced. Since 2,500 units of penicillin was the highest concentration tested that was well tolerated, this quantity was used for the study of penicillin distribution following subconjunctival injection.

The reaction of the eyeball to topical applications of penicillin was tested on the corneas of rabbit and man. In the rabbit a constant contact of the cornea with a saline solution of penicillin containing as much as 20,000 units per cubic centimeter produced no staining with fluorescein or any other change visible to the naked eye. In man, solutions containing 10,000 units per cubic centimeter, dropped into the conjunctival sac produced only a slight smarting. Examination of the eyeball with the slit lamp and fluorescein staining revealed no alteration in the corneal epithelium.

(a) *Subconjunctival Injection:* After subconjunctival injections, eyeballs were removed at one-half and three hour intervals and the ocular tissues and fluids tested for the penicillin concentration. The penicillin content in the aqueous found with 2,500 units in this manner approximated that obtained by using forty times as much intravenously. The concentration reached in the cornea, vitreous humor, conjunctiva, sclera and iris with ciliary body exceeded many times that obtained by the intravenous route. Thus the cornea and vitreous humor, which barely showed a trace of penicillin when it was given intravenously by the subconjunctival route, reached the high value of 28 units in the cornea and 1.95 units in the vitreous humor (chart 3). One cannot rule out completely that leakage from the subconjunctival injection may lead to direct contact of the penicillin with the cornea. Unfortunately, after the intravenous injection the uveal and retinal tissues were not tested separately nor were they separated in anterior and posterior portions, so the value 2.03 units represents a mean of the entire retina and uvea. This value is in sharp contrast to the high values of 10.8 to 26.32 units per gram of iris and ciliary body obtained after the subconjunctival injection of much smaller amounts of penicillin. One disadvantage of the latter method is that the posterior uveal and retinal tissues showed little or no penicillin. Analyses of scleral tissue taken from the anterior portion of the globe gave values ranging from 163.23 to 194.40 units per gram, while those taken from the posterior portion of the globe showed a range from 92.54 to 93.31 units per gram. The conjunctival concentrations were extremely high, ranging from about 106 to 449 units per gram of tissue. In three hours most of the ocular tissues tested were essentially negative except for slight amounts in the aqueous and vitreous humors.

(b) *Topical Application:* Rabbits were anesthetized by intravenous injections of sodium amytal. An excess of solution containing 20,000 units of penicillin per cubic centimeter of isotonic solution of sodium chloride was placed in the conjunctival sac of the rabbit, and the lids were clamped sufficiently tight to prevent an escape of the fluid. At one-half, one and three hour intervals the eyes were irrigated with saline solution to remove any remaining penicillin. After enucleation of the eyeball, tests were made for the penicillin content in the manner already described. Chart 2 shows the rise in

concentration of penicillin in the aqueous humor. It reaches a value of 3.32 units per cubic centimeter in thirty minutes, a level maintained with little change for one and one-half hours; but at the end of the third hour an increase in the concentration was noted (14.2 units per cubic centimeter). The aqueous humor at this time was of amber color, resembling a dilute solution of the type of penicillin used in the experiment, showing that penicillin penetrates not only the cornea but also the chromatic material that is combined with it. The concentrations of the drug in the cornea and iris with ciliary body are very high. Although the penicillin content of the sclera following topical application was less than that obtained by subconjunctival injection, it was very much greater than that found after the intravenous injection (chart 3). Of all three routes employed, the topical application in the form of a prolonged corneal bath gives the highest value in the vitreous humor. The crystalline lens was always negative by any method of administration.

It was reasonable to expect that wetting agents having a definite influence in increasing the penetrability

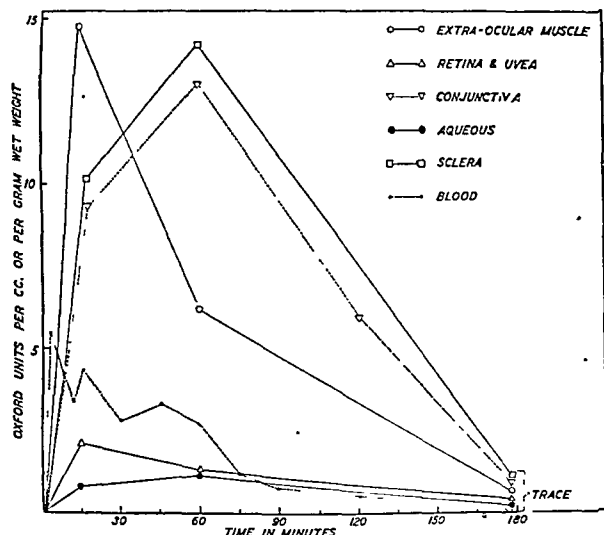


Chart 1.—Concentration of penicillin in the blood, ocular tissues and fluids following a single large intravenous injection (12,800 units per kilogram).

of sulfonamides might have a similar effect in increasing the penetration of penicillin.⁸ However, the results were negative with an aerosol. In fact, there was a moderate decrease when penicillin was used with this wetting agent. Whether this resulted from a destruction of penicillin by the aerosol due to p_H changes or from other factors was not determined. Other wetting agents should be investigated.

D. The Effect of Paracentesis on the Penicillin Content of the Aqueous Humor.—The effect of paracentesis on the amount of penicillin in the second aqueous was undertaken. Rabbits were anesthetized by intravenous injection of sodium amytal, and penicillin was injected intravenously. A moderate increase in the second aqueous was noted, confirming the observation made by von Sallmann and Meyer. In view of the fact that the aqueous was removed at fifteen and forty-five minute intervals, a period of time for the penicillin

concentration to increase normally (chart 1), it is quite possible that this noted increase might have been independent of the paracentesis. The experiment should be repeated with suitable controls.

E. Penicillin in the Tears.—Florey and his co-workers in England and Rammelkamp and Keefer in this

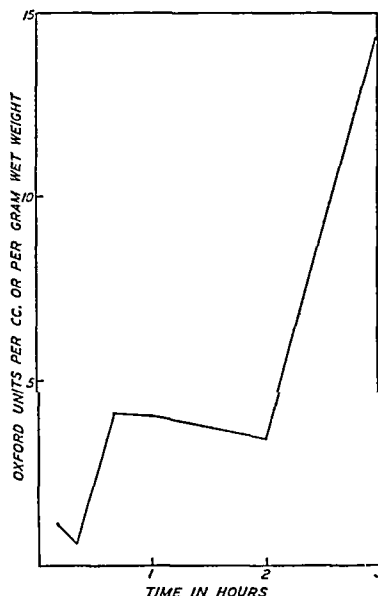


Chart 2.—Penetration of penicillin through the cornea.

country have reported the absence of penicillin in tears. After intravenous injection of 12,800 units of penicillin per kilogram of body weight the tears of dogs contained 3.15 units per cubic centimeter within fifteen minutes and 1.66 units per cubic centimeter within the second fifteen minute period. The effect of lysozyme in tears was ruled out by testing tears

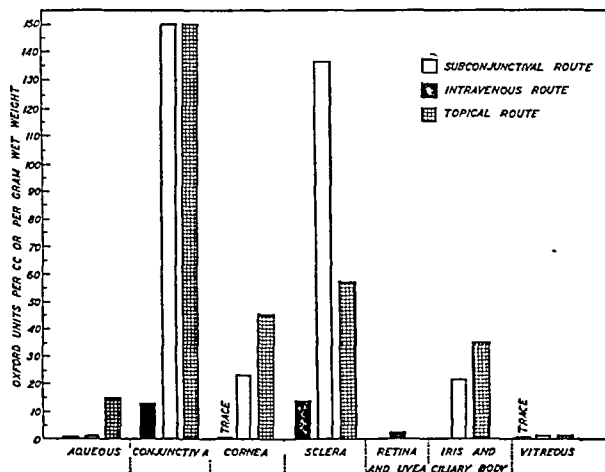


Chart 3.—A comparison of the maximal concentrations of penicillin in eyeball following intravenous, subconjunctival and topical administration.

before administering penicillin. However, the possibility of increased diffusion of serum and penicillin from the underlying capillaries due to conjunctival irritation must be considered.

F. The Concentration of Penicillin in Other Body Tissues and Fluids.—In dogs, after the intravenous injection of 12,800 units of penicillin per kilogram of body weight, various tissues and fluids were collected

8. Bellows, J. G.: Chemotherapy in Ophthalmology, Arch. Ophth. 29: 888 (June) 1943. Bellows, J. G., and Wetting Agents in Ophthalmology with Compounds, ibid. 30: 352 (Sept.) 1943. Chinn, H., and Bellows, J. G.: Corneal Penetration of Sulfanilamide and Some of Its Derivatives, ibid. 27: 34 (July) 1942.

at the end of one, two and three hour intervals. Table 1 shows that the concentration in the tissue is greatest at the end of the first hour and falls to a trace or becomes entirely negative within two or three hours. This gives substantial support for the clinical recommendation that penicillin be administered either by intravenous drip over a long period of time or by frequent intramuscular injections.

G. Clinical Trial of Penicillin in Ocular Infections.—The foregoing data make it apparent that topical applications of penicillin are the most suitable form of administration for external infections of the eyeball and its adnexa and that parenteral injections, although leaving much to be desired, are best suited for infections of the uveal and retinal layers particularly in the posterior segment. Table 2 summarizes the results of the topical application of penicillin for external ocular infections. In a total of 13 cases, gratifying results were obtained by penicillin drops. The concentration of the drug varied from 200 to 2,500 units per cubic centimeter.

TABLE 1.—Concentration of Penicillin in Body Tissues and Fluids After a Single Massive Intravenous Injection

Tissue	Time in Hours		
	1 Hour	2 Hours	3 Hours
	Units per Gm. or Cc.	Units per Gm. or Cc.	Units per Gm. or Cc.
Liver.....	4.77	•	•
Bile.....	6.65	•	4.99
Heart.....	2.41	•	•
Kidney.....	17.35	•	•
Lung.....	8.91	•	•
Voluntary muscle.....	1.50	•	•
Skin.....	6.06	•	•
Nerve.....	0	0	0
Brain.....	0 to •	0	0
Dura.....	0 to •	0	•
Bone marrow.....	0	0	0
Pancreas.....	2.69	•	•
Adrenal.....	2.72	0	0
Spleen.....	1.89	•	•
Buccal mucosa.....	8.39	•	0
Small intestine.....	9.65	•	0

Each figure represents two or more determinations.

• Equals trace of penicillin.

A less satisfactory response was observed in deep seated lesions even though penicillin was administered by intravenous or intramuscular injection. A total of 3 cases was studied. Two patients had chronic exudative choroiditis: one with a solitary lesion near the superior temporal periphery adjacent to an area of old healed chorioretinitis, and the other with a large confluent area of deep choroiditis in the inferior mid aspect of the fundus. Tuberculin tests in both cases were negative through the 1 to 10 dilutions. Syphilis and all possible foci of infection had been eradicated. The vitreous in both instances contained many opacities but not to such an extent as to prevent a view of the fundus lesions. Both patients were given a continuous intravenous drip of 100,000 units of penicillin for seventeen hours (in 1,000 cc. of isotonic solution of sodium chloride). This was followed by 100,000 units of the drug daily by intramuscular injection for the next two days. The 100,000 units was dissolved in 20 cc. of isotonic solution of sodium chloride so that each cubic centimeter contained 5,000 units. This was administered every three hours day and night. At the end of the seventy-two hours treatment neither case showed evidence of clinical improvement. Penicillin in the strength of 500 units per cubic centimeter was instilled every three hours day and night for ten days. At the end of that time both patients were again examined.

There was no appreciable change in the appearance of the fundus picture, vitreous opacities or visual acuity.

The third case was one of subacute bilateral iridocyclitis with a unilateral macular edema of the left eye. This patient's eye condition was believed to be due to a recent neisserian infection which had recurred on two occasions—once following a third course of sulfathiazole and once following an inadequate dose of penicillin. At this time the urethral discharge had entirely subsided and prostatic findings were negative. All foci of infection had been eliminated. The condition had progressed in spite of atropine and hot compresses locally and repeated intravenous injections of typhoid vaccine with a poor febrile response.

Prior to the intravenous and intramuscular administration of penicillin for three days as outlined, the visual acuity of the right eye was 20/20 and of the left eye 20/70. There were many cells in the aqueous of both eyes. At the completion of the therapy described the vision of the left eye had improved to 20/30. At that examination it was noted also that practically all the cells had disappeared from the aqueous of both eyes. One week later the vision had slipped in the left eye to 20/50—1 and a moderate number of cells were again present in the aqueous of both eyes. Pupillary dilatation had been maintained during this period.

This patient subsequently showed much improvement following two treatments in the fever cabinet, running the temperature up to 106 F. for five hours. One hundred thousand units of penicillin was administered intravenously over a period of a few hours during the fever therapy. The day following this first treatment the visual acuity of the left eye had improved to 20/20—2 Jaeger 1 and thereafter was staying at 20/15. All macular edema had subsided.

There was considerable clearing of the cells in the anterior chambers of both eyes following this regimen but there had been some slight recurrence of cells in the anterior chamber of the right eye during the past forty-eight hours.

Although the clinical data presented in this report are small, they bear out the conclusions reached theoretically that, in external disease in which local application of penicillin could be brought in high concentration on the infection, the infection cleared rapidly. Infections of the chorioretinal layers in which the penicillin concentration was slight even after massive intravenous dosage showed little response.

COMMENT

The ready permeability of most of the tissues after the intravenous injection of penicillin is undoubtedly an important factor in its therapeutic efficacy. However, some very important exceptions exist: the cornea, lens, vitreous humor, cerebrospinal fluid, nerve, brain, dura and bone marrow show little or no penicillin after such injections. In one experiment erratic results were obtained with bone marrow. It must be emphasized that some preparations of penicillin have enormous potency and are effective in dilutions of over 1 to 100 million. Since amounts less than 0.1 to 0.2 unit are not measurable by Florey's method, it is still possible that bacteriostatically effective concentrations may be present in some of these tissues and organs.

Certain organs and tissues apparently extract large amounts of this substance from the blood stream and eventually may contain a concentration greater than that of the blood. For example, the extraocular muscles contain almost 15 units per gram of wet weight

within fifteen minutes, and the less vascularized tissues, such as the conjunctiva and sclera, obtain their maximum concentrations of 13 and 14 units per gram of wet weight at the end of sixty minutes. These values are about three times as high as that found in the blood at its peak, which is immediately after the injection. The data here presented suggest the possibility that some tissues may have a selective absorption for penicillin. The highest peak reached in the aqueous humor is at the end of one hour, resembling in this respect the conjunctiva and sclera. Both the aqueous humor and uveal and retinal tissues show but small amounts of penicillin, and therefore the decline is not as precipitous as in the case of those tissues which contain large amounts of penicillin (chart 1). The avascular

Even at the end of three hours, when all other tissues and fluids are either negative or show only a trace of the drug, the bile contained about 5 units of penicillin per cubic centimeter (table 1). The Oxford investigators incubating penicillin with blood and various tissues at 37 C. for three hours observed no decrease in the potency of the drug. The intravenous or intramuscular injection of penicillin in dogs in therapeutic dosage gives a concentration of penicillin in the blood and most tissues too small to be detected by the usual methods of assay. Since it is advisable to give penicillin in large doses so as to prevent organisms (particularly the staphylococci) from becoming penicillin fast, it seems from the data reported here that the dosage which is considered by some clinicians to be sufficient,

TABLE 2.—Results of Topical Application of Penicillin for External Ocular Infections

Patient	Diagnosis	Cultures	Medication	Results
N. L. W.	Chronic catarrhal conjunctivitis O. U.; granular blepharitis	.....	Penicillin drops, 200 units per cc.	Conjunctivitis cured in 24 hours; blepharitis unimproved
W. W. W.	Acute catarrhal conjunctivitis	Gram negative diplobacilli and hemolytic Staph. albus	Penicillin drops, 500 units per cc.	Control eye treated with 0.25% zinc sulfate; penicillin treated eye cured in 48 hours; control eye cured in 72 hours
M. H.	Acute hypertrophic catarrhal conjunctivitis with follicles O. D.; no preauricular glands; 10 days later similar onset in O. S.	Two cultures negative; third culture showed 1 colony of non- hemolytic Staph. albus	Penicillin drops, 200 units per cc.; later 500 units per cc.	Right eye (first involved) required 10 days for clinical cure; left eye cured in 3 days on 500 units per cc. solution
H. C. B.	Acute catarrhal conjunctivitis O. S.	Few bacteria only, not identified	Penicillin drops, 200 units per cc.	Cured in 24 hours
J. B. O.	.....	Pure culture; Strep. viridans	Penicillin drops, 500 units per cc.	O. S. very much improved in 24 hours; cured in 48 hours; O. D. cured in 36 hours
H. C. H.	Acute catarrhal conjunctivitis O. U.	No growth	Penicillin drops, 500 units per cc.	Both eyes cured in 48 hours
R. S. S.	Acute catarrhal marginal ulcer O. S.	Nonhemolytic Staph. albus	Penicillin drops, 200 units per cc.	Cured in 12 hours; patient had had similar episodes previously, not treated with anything, which re- solved in 12-24 hours
D. B.	Acute catarrhal conjunctivitis O. D.	No growth	Penicillin drops, 500 units per cc.	Cured in 24 hours
H. B. G.	Chronic catarrhal conjunctivitis O. U.; 15 years' duration with recurrent bouts of pain, redness and tearing; allergic studies negative; somewhat improved O. U.; autogenous vaccine over 3 months' time	Staph. albus and diphtheroids	Penicillin drops, 500 units per cc.	Lids much improved in 72 hours; penicillin continued for 3 weeks; objectively and subjectively there was great improvement
C. F. H.	Right acute episcleritis 1 day's duration	.....	Penicillin drops, 2,500 units per cc.	Eye white in 24 hours
R. S.	Acute conjunctivitis O. D.; first noticed on awakening	.....	Penicillin drops, 2,500 units per cc.	Much improved in 24 hours; normal in 48 hours
C. M.	Acute catarrhal conjunctivitis O. U.	Hemolytic Staph. albus	Penicillin drops, 500 units per cc.	Much improved in 24 hours; normal in 48 hours
A. F. B.	Acute conjunctivitis	Culture and smears negative	Penicillin drops, 2,500 units per cc.	Objectively and subjectively normal

cornea and vitreous humor either contained no penicillin or at the most showed a quantity less than 0.2 unit per gram of tissue. The factors that the lens is avascular and is surrounded by a capsule which may serve as a barrier are probably important in explaining its constant negative test.

The very high penicillin content in the kidney (17.38 units per gram) is not surprising in view of the fact that this organ is active in the excretion of the drug. Of possible clinical importance are the surprisingly high amounts found in the lungs (8.91 units per gram), skin (6.06 units per gram), buccal mucosa (8.36 units per gram), small intestines (9.68 units per gram), bile (6.65 units per cubic centimeter) and liver (4.77 units per gram). The saliva, contrary to the negative report of Rammelkamp and Keefer, showed a slight amount of penicillin.

It is interesting to speculate where the penicillin is "lost." Florey and his associates have demonstrated that the entire loss cannot be accounted for by the amount appearing in the urine. It is noteworthy that the bile contains a very high concentration of penicillin.

that is, 100,000 units daily for a 70 Kg. person, is really inadequate.

When penicillin can be applied topically, an enormous concentration can be achieved locally, which surpasses by far any value which can be secured even by the most massive intravenous doses. This procedure has the further advantage of saving a considerable amount of the drug. Subconjunctival injection up to 2,500 units and topical administration of a concentration up to 20,000 units of penicillin are well tolerated by the rabbit. By these means extremely high concentrations can be obtained in the tissues of the anterior segment of the eyeball. It must be pointed out that the rabbit's cornea has been shown to be more permeable to sulfonamides than those of the dog and man. A similar difference may exist with penicillin. Whether this variation in permeability is due to the reported differences in the thickness of the cornea is unknown. Friede⁹ states that the thicknesses of the central por-

9. Friede, R.: Vergleichende Studien zur Grösse der tierischen und menschlichen Hornhaut mit besonderer Berücksichtigung der menschlichen Megalcornea, Arch. f. Ophth. 131:1, 1934.

tions of the corneas of rabbit, dog and man are 0.8, 0.9 and 0.9 mm. respectively. At the periphery the thickness is even greater in man. However, the concentration reached in the anterior segment of the eyeball is so great that, even if the penetration in man should be only a small fraction of that found in the rabbit, the amount reaching the cornea, conjunctiva, sclera, aqueous and the anterior uvea will still be adequate for therapeutic effectiveness.

The amount of penicillin reaching the vitreous chamber, although slight, is much more than what can be obtained even after very massive intravenous doses. The extremely high corneal penetration reached after three hours of constant corneal bath with penicillin is surprising (chart 2). The constant moderate value for two hours followed by the rapid rise after that time suggests a change in corneal permeability permitting an increased penetration.

It would seem from the results of our investigation that, if the efficacy of the drug is dependent only on its concentration (an assumption for which there is no proof), the local application of penicillin to the eyeball should be effective in those infections with organisms susceptible to the action of penicillin, involving conjunctiva, cornea, sclera, anterior chamber, iris with ciliary body, and vitreous. Similar infections involving the posterior uvea and retinal layers will require the parenteral administration of large amounts of penicillin. But even after huge amounts the penicillin content in these tissues is low.

Bearing out these laboratory findings are the clinical results. Infections involving conjunctiva and cornea respond rapidly to penicillin locally. Infections involving the posterior uveal tissues seem uninfluenced even after massive intravenous doses.

SUMMARY

1. Penicillin can be detected in the eyeball within fifteen minutes after a large intravenous injection. The concentrations of the tissues and fluids examined, listed in decreasing order, are as follows: extraocular muscles, sclera, conjunctiva, tears, chorioretinal layer, aqueous humor, vitreous and cornea. The crystalline lens is negative. The value in the blood is highest immediately after the injection, drops to about half of the original level in one hour and is down to zero at the end of three hours. The extraocular muscle has its greatest concentration in fifteen minutes and drops precipitously from then on. The aqueous humor and the less vascularized tissues such as the conjunctiva and sclera after their initial sharp rise within the first fifteen minutes continue to increase slowly until the end of the first hour. Barely a trace of penicillin remains in the eyeball after three hours.

2. Penicillin administered intravenously and intramuscularly in amounts comparable to therapeutic doses ordinarily reaches such a slight concentration in the fluids and tissues that it is not measurable by the usual methods.

3. After subconjunctival injection, high and even enormous concentrations are reached in the cornea, iris with ciliary body, conjunctiva and sclera. There is a moderate amount in aqueous and vitreous humors. The posterior half of the chorioretinal layer and the lens show negative results. After a constant corneal bath of penicillin the results are similar, except that the concentrations in the aqueous, cornea, vitreous and iris with the ciliary body are higher and those in the conjunctiva and sclera are lower.

4. One hour after a huge intravenous injection of penicillin the body tissues and fluids examined, listed in decreasing order, are as follows: kidney, small intestine, lung, buccal mucosa, bile, skin, liver, adrenal, pancreas, heart, voluntary muscle and spleen. At the end of three hours all the tissues and fluids examined, except bile, show little or no penicillin. Bile at that time still retains 5 units of penicillin per cubic centimeter.

5. The clinical results of local application of penicillin in external ocular disease are encouraging. In a few deeply situated inflammatory lesions of the eye, little or no improvement is noted in spite of huge doses of penicillin given intravenously.

PENICILLIN IN THE TREATMENT OF OPHTHALMIA NEONATORUM

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Although the sulfonamides have been of great value in the treatment of ophthalmia neonatorum, certain problems have arisen in connection with their use which seemed to justify a study of the effects of penicillin.

For several years the Illinois Department of Public Health has provided hospitalization and treatment for patients with ophthalmia neonatorum. The plan provided for immediate hospitalization of the infant in a centrally located hospital where the services of an ophthalmologist and a pediatrician were available. The infants were treated with sulfonamides orally and with irrigations locally. Although no blindness resulted in some 35 cases so treated, it was found that many infants were either intolerant to the sulfonamides or quickly became resistant. Prolonged hospitalization usually was necessary before the infant could be discharged as clinically and bacteriologically cured.

STUDY

Through the courtesy of the Committee on Chemotherapeutics and Other Agents of the National Research Council, a limited supply of penicillin was made available to study its effect on ophthalmia neonatorum.

Of the 8 cases included in this study, 5 showed gram-negative intracellular diplococci on smear and organisms giving a positive oxidase reaction and fermentations typical of gonococci on culture.

Two cases showed gram-negative intracellular diplococci on smear and oxidase positive colonies of gram-negative diplococci on culture. The organisms isolated from these two cultures failed to grow on subculture.

In 1 case the etiologic agent could not be determined, although the clinical findings were typical of ophthalmia neonatorum (case 7).

Because of the lack of precedent it was necessary at the beginning of the study to outline more or less arbitrary procedures with respect to both the dosage of penicillin and the criteria of cure.

Ten thousand units of penicillin injected intramuscularly at intervals of three hours for a total of six injections.

From the Illinois Department of Public Health, Roland R. Cr... M.D., Director.

The penicillin was provided by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for clinical investigations recommended by the Committee on Chemotherapeutics and Other Agents of the National Research Council.

tions was selected as the original treatment schedule. Later this was felt to be inadequate and the dosage was adjusted individually for each case (table 1).

The criteria of cure chosen were (a) absence of clinical activity, (b) three consecutive negative smears for gram-negative intracellular diplococci and (c) three consecutive negative cultures for gonococci.

All patients received instillations of 0.5 per cent atropine sulfate and irrigations of sterile water during the acute clinical phase of the infection.

REPORT OF CASES

CASE 1.—A Negro girl born Nov. 19, 1943, with onset November 20, admitted November 23, received a total of 39 grains (2.5 Gm.) of sulfadiazine in several courses together with 2 per cent sulfathiazole solution irrigations in both eyes between the date of admission and Jan. 8, 1944. Sulfadiazine was stopped because of persistent vomiting. Smears and cultures from both eyes were positive for gonococci on January 8, and examination revealed moderate swelling and injection of both conjunctivas with a moderate amount of purulent exudate. The corneas were normal. The patient was given 60,000 units of penicillin intramuscularly over a fifteen hour period. Definite clinical improvement was noted at the end of twenty-four hours; there was no further discharge. Both eyes were clinically normal within three days and remained so thereafter. Cultures and smears became negative on the 2d day following completion of penicillin therapy. Except for one positive culture from the right eye on the 3d day, all cultures and smears remained negative.

CASE 2.—A white boy born Dec. 10, 1943, with onset December 22, admitted Jan. 10, 1944, received no treatment prior to admission other than silver nitrate prophylaxis at birth. Examination revealed moderate redness and swelling of both eyes externally. The conjunctivas were injected, and a frankly purulent discharge was present bilaterally. The corneas were clear. The patient received 60,000 units of penicillin intramuscularly during a fifteen hour period. Because of persistent clinical and laboratory findings a second course of 90,000 units (15,000 every three hours) was given on the 5th day of hospitalization but failed to effect any improvement. A short course of sodium sulfadiazine during the 13th to 16th hospital days likewise failed to elicit any response. On the 23d and 24th days a third course of penicillin was administered, 20,000 units for six doses followed by 10,000 units for six doses. The conjunctivitis continued unabated, and smears and cultures remained positive. Recovery finally occurred after the use of sulfonamides combined with foreign protein therapy.

CASE 3.—A Negro boy born Jan. 12, 1944, with onset January 17, admitted January 18, had been given silver nitrate prophylaxis at birth and boric acid solution irrigations following the onset. Intense swelling and redness of both eyes externally and pronounced chemosis and injection of the palpebral conjunctivas with a frankly purulent exudate were noted on admission. No corneal involvement was found. Over a fifteen hour period 120,000 units of penicillin was administered intramuscularly. Considerable improvement occurred in both eyes within eight hours after the beginning of therapy. Chemosis and injection gradually subsided, so that both eyes appeared normal on the 6th day of hospitalization and remained so thereafter. Following treatment, smears failed to show any intracellular diplococci and all cultures were negative.

CASE 4.—A white girl born Jan. 12, 1944, with onset January 27, admitted January 28, had been treated with silver nitrate at birth. On admission the right eye showed moderate swelling externally, a purulent discharge and injection and chemosis of the conjunctiva. The only involvement of the left eye consisted of slight conjunctival injection. The corneas were clear bilaterally. Initial smears and cultures revealed both gonococci and *Haemophilus influenzae*. The patient received 180,000 units of penicillin intramuscularly over a period of thirty-four hours (6 doses of 20,000 units followed by six doses of 10,000 units). Definite improvement was noted in nine hours, and both eyes were clinically normal on the 4th hospital day and remained so. Following the initial laboratory findings

all cultures were negative for gonococci, and smears failed to show any intracellular gram-negative diplococci. Organisms resembling *Haemophilus* were seen in small numbers in both smears and cultures periodically throughout observation.

CASE 5.—A Negro girl born Jan. 31, 1944, with onset February 3, admitted February 4, with delivery by a midwife, received no treatment prior to admission. The left eye showed external swelling and redness with a frankly purulent discharge. The left palpebral conjunctiva was injected and chemotic. There were minimal findings in the right eye. The corneas were clear bilaterally. During thirty-six hours 180,000 units of penicillin was administered intramuscularly. Improvement was noticeable after the 2d injection, and the eyes were practically normal twenty-one hours after the beginning of therapy. All cultures were negative after completion of therapy, and smears failed to show any intracellular gram-negative diplococci.

CASE 6.—A Negro boy born Jan. 23, 1944, with onset January 28, admitted February 4, had been given only silver nitrate prophylaxis at birth. External redness and swelling, chemosis and purulent discharge were all present in the left eye. Minimal findings were seen in the right eye. The corneas were clear bilaterally. Initial smears were typical for gonococci in the right eye, and a culture revealed oxidase positive colonies of gram-negative diplococci which failed to grow on transplants and could not therefore be confirmed. The patient received

TABLE 1.—Results of Treatment of Ophthalmia Neonatorum with Penicillin

Case No.	Duration of Infection, Days	Etiologic Agent	Total of Penicillin Units	Beginning of Improvement, Hours	Clinical Cure, Days	Laboratory Cure, Days	Final Results
1	47	N. gonorrhoeae	60,000	24	3	9	Satisfactory
2	20	N. gonorrhoeae	330,000*	..	..	..	Unsatisfactory
3	2	N. gonorrhoeae	120,000	9	6	7	Satisfactory
4	2	N. gonorrhoeae, H. influenza (?)	180,000	9	4	6	Satisfactory
5	2	N. gonorrhoeae	180,000	6	6	24	Satisfactory
6	8	N. gonorrhoeae(?)	180,000	9	5	8	Satisfactory
7	4	(?)	230,000	..	..	..	Unsatisfactory
8	25	N. gonorrhoeae(?)	240,000	9	5	7	Satisfactory

* 60,000 units 1st day, 90,000 units 4th day, 180,000 units 22d and 23d days.

180,000 units of penicillin intramuscularly during a thirty-two hour period. At the time of the 4th injection definite clinical improvement was noted and by the 5th hospital day both eyes were clinically normal. All subsequent smears and cultures were negative following completion of therapy.

CASE 7.—A white boy born Feb. 21, 1944, with onset February 28, admitted March 1, had received silver nitrate prophylaxis at birth and instillations of mild protein silver during the three days following onset. The right eye was moderately involved with external redness and swelling, inflammatory chemosis and a purulent discharge. Slight conjunctival findings were present in the left eye. No gonococci were found in the initial smears or cultures, but in the latter several colonies of diphtheroids were isolated. These proved to be avirulent in guinea pigs. There were no other findings which helped to determine the etiologic agent, and smears taken from the child's mother proved negative for gonococci. Penicillin was administered intramuscularly every three hours, 15,000 units in each of six doses followed by 10,000 units for fourteen doses (total 230,000 units). Specific therapy was prolonged in this case because of its failure to effect adequate improvement in clinical findings at the end of fifteen hours. At the completion of therapy moderate improvement was noted, but for the next thirteen days the condition remained static and complete recovery was not achieved. Following a short course of sodium sulfadiazine during the 17th to 19th hospital days, both eyes quickly returned to normal. Smears and cultures failed to reveal any significant organisms throughout the entire period of observation.

CASE 8.—A white boy born Feb. 19, 1944, with onset February 22, admitted March 17, concerning whose treatment prior to admission no information was available other than silver nitrate prophylaxis at birth, exhibited a bilateral purulent conjunctivitis at the initial examination. The conjunctival surfaces of the upper lids were granular. The corneas were not involved. Initial smears were typical for gonococci, and culture revealed oxidase positive colonies of gram-negative diplococci, which failed to grow on subcultures and could not therefore be confirmed. The patient received 20,000 units of penicillin intramuscularly every three hours for twelve doses (total 240,000 units). Definite clinical improvement was noted

TABLE 2.—Results of Smears and Cultures During and Following Penicillin Therapy

Hospital Day	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
	S C	S O	S O	S C	S O	S C	S C	S C
Admission	P P	P P	P P	P P	P P	P P	N N	P P
9th hour	N P	P P	..	D N	D N	D N	N N	P N
2.....	N P	..	N N	D N	D N	D N	N N	N N
3.....	N N	D N	N N	N N	D N	N N	..	..
4.....	D P	D N	D N	N N	..	..	N N	N N
5.....	N N	N N	N N	N N	..	..	N	..
6.....	..	N N	N N	N N	..	..	N	..
7.....	..	N N	N N	..	D N	N N	..	N N
8.....	N N	..	N N	..	D N	N N	..	..
9.....	N N	..	..	..	..	..	..	..
10.....	N N	..	..	N	..
11.....	..	N P	..	..	..	..	..	..
12.....	N N	..	..	..	..	..
13.....	..	N N	N N	..	..	..	..	..
14.....	..	N P	D N	..	..	..	N	..
15.....	..	N N	..	N N	..	..	N	..
16.....	N N	D N	D	..	..	..
17.....	D N	..	D	..	..	..
18.....	N N	..	D	..	..	..
20.....	..	N P	D N	..	..	..	..	..
21.....	..	D P	N N	..	..	..	..	..
22.....	..	D P	..	..	N	..	..	..
23.....	N	..	..	..
24.....	D	N N	..	..	..
25.....	D N	D	..	..	..	..
26.....	D N	N N	..	..	..	..
27.....	..	N N	..	..	..	..	..	..
28.....	..	D N	..	..	..	..	..	..
29.....	..	N P	..	..	..	..	..	..
30.....	N N	..	..	..	..
31.....	N N	..	..	..	..
32.....	N N	..	..	..	..
33.....	..	P N	D	..	..	..	..	..
34.....	..	P N	D	..	..	..	..	..
36.....	N N	..	..	..	..	..
40.....	N	..	..	..	..	..
41.....	N	..	..	..	..	..
57.....	..	N	..	..	..	..	..	..
59.....	..	D	..	..	..	..	..	..
63.....	..	N	..	..	..	..	..	..
65.....	..	N	..	..	..	..	..	..
66.....	..	N	..	..	..	..	..	..
67.....	..	N	..	..	..	..	..	..

* Cultures showed oxidase positive colonies of gram-negative diplococci which failed to grow on subculture and therefore could not be confirmed. S = smear, C = culture, P = positive, gram-negative intracellular diplococci in smears or gonococci in confirmed cultures, D = doubtful, gram-negative extracellular diplococci in smears, N = negative smear or culture, no gonococci.

at the time of the 9th injection, and both eyes were clinically normal by the 5th hospital day. Smears and cultures reverted to negative on the 2d day of therapy and remained so thereafter.

COMMENT

Clinical Response.—All except 2 of the 8 cases in this series responded to therapy within twenty-four hours, as manifested by subsidence of active inflammation. Case 2 and case 7 showed some improvement during and immediately after penicillin therapy but, instead of progressing to complete recovery as did the other 6 cases, again developed signs of active inflammation. Repeated courses of penicillin in case 2 produced the same initial response of short duration, followed by relapse.

Because of the large amount of penicillin given initially in case 7, it was not felt that a repeated course would be effective.

In the 6 cases that responded to the specific therapy, clinical recovery occurred in from three to six days, with complete absence of purulent discharge, chemosis and injection.

No corneal complications developed in any of the 8 cases.

As can be seen in cases 1, 3, 4, 5 and 6, occasional gram-negative extracellular diplococci were found on smears taken at varying intervals, even though cultures remained negative and the eyes were clinically normal. No further treatment was given and these cases were kept under observation until three consecutive negative smears and cultures were obtained.

Because of the persistence of clinical activity in case 2, treatment was continued despite the three consecutive negative smears and cultures obtained early in the period of observation, and later both smears and cultures were again found positive.

The treatment progress of each case is outlined in table 1.

Bacteriologic Response.—Smears and cultures were taken in all cases before beginning therapy, at the time of the third injection of penicillin and at intervals thereafter until the bacteriologic criteria of cure as outlined had been fulfilled.

As shown in table 2, all cases except 2 and 8 showed the absence of gram-negative intracellular diplococci in the smears taken at the time of the third injection, although smears in cases 4, 5 and 6 showed the presence of extracellular organisms. Cases 1 and 2 also gave positive cultures at this time, but cultures for all other cases were negative.

Of those cases that responded to penicillin, only 1, case 1, showed a positive culture after the 3d injection of the drug.

Reactions.—A possible reaction to penicillin was observed in case 2. Four days after the second course of penicillin a generalized papular eruption occurred and gradually subsided. Following the third injection of the third course the patient developed a generalized vesicular rash, which subsided during the following ten hours even though penicillin injections were continued. The day after completion of the 3d course a typical urticarial eruption was noted on the trunk and scalp. Although no additional penicillin was administered, the child continued to develop periodic allergic skin manifestations in the form of vesicular, urticarial and pustular lesions.

SUMMARY

1. Eight cases of ophthalmia neonatorum were treated with intramuscular injections of penicillin in total dosages varying from 60,000 to 330,000 units.

2. In 5 of the 8 cases the etiologic agent was definitely established as *Neisseria gonorrhoeae* by confirmatory fermentation tests; in 2 of the cases gram-negative intracellular diplococci gave positive oxidase reactions when grown on chocolate agar but could not be subcultured for confirmatory fermentation tests; in 1 case the infective agent could not be determined.

3. Six of the 8 cases responded promptly to penicillin with pronounced clinical improvement within twenty-four hours and complete recovery within three to six days.

4. The disappearance of specific organisms in smears and cultures was noted in from nine to twenty-four hours after beginning treatment with penicillin.

PHLEBOTOMUS (PAPPATACI OR
SANDFLY) FEVER

A DISEASE OF MILITARY IMPORTANCE

SUMMARY OF EXISTING KNOWLEDGE AND PRELIMI-
NARY REPORT OF ORIGINAL INVESTIGATIONS

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(Concluded from page 606)

CLINICAL MANIFESTATIONS

Since there is as yet no specific diagnostic test for the individual case of Phlebotomus fever, it has always been difficult to know which variations from the typical syndrome could be correctly interpreted as manifestations of the same disease. During the course of various experiments in the present investigation more than 100 cases of the experimentally produced disease were observed. The following description of the various clinical manifestations is based on these observations:

Incubation Period.—Following intracutaneous injection of the virus, approximately 95 per cent of the persons developed the disease after an incubation period of about two and one-half to six days. There was 1 case after seven and nine days each and 1 probable case after fifty hours. Following intravenous inoculation, however, an incubation period of forty-two to forty-four hours was observed in 7 persons.

Fever.—Fever is unquestionably the most constant and, on occasion, perhaps the only sign. A few persons were encountered who developed the leukocyte changes characteristic of the disease without exhibiting any fever. Approximately 65 per cent had temperatures of 102 F. or more. Temperatures higher than 104.5 F. were not encountered, and only about 8 per cent had temperatures between 104 and 104.5 F.; only about 2 per cent had temperatures under 100 F. The duration of fever varied from part of one day to as long as nine days. The two, three and four day fevers, however, constituted 85 per cent of the total. In table 1 the duration of fever in 100 cases of experimental Phlebotomus fever is compared with that observed by Simmons, St. John and Reynolds¹⁸ in 81 cases of experimental dengue. Although in dengue also the duration of fever may vary from one to nine days, it is noteworthy that the five, six and seven day fevers constitute about 80 per cent of the total. Some of the varieties of temperature curves encountered in experimental Phlebotomus fever are shown in figure 3. The peak is reached on the first or second day and defervescence is usually gradual. Occasionally the temperature rises again after it has been normal for a day. Multiple cycles of fever will be described later under recurrences.

Pulse Rate.—On the first day of the disease the pulse rate is usually elevated, sometimes in proportion to the fever. Thereafter it returns to normal more rapidly than the temperature. A true bradycardia is not always present, but when it occurs it is observed in the range of 42 to 60 at the end of the febrile period

and during convalescence. The blood pressure is frequently low during the disease and convalescence.

Signs and Symptoms.—The disease is sudden in onset in the majority of cases. In some it is preceded by constipation, abdominal distress, giddiness and generalized malaise. The following signs and symptoms were encountered at the onset or sometime during the course of the disease, although many of them were frequently absent in otherwise typical cases:

1. Headache, usually severe and characteristically frontal or behind the eyes.
2. Burning sensation or pain in the eyes especially on movement; photophobia.
3. Generalized malaise, stiffness of the neck and back, backache especially in the sacroiliac region, and rheumatic-like pains in the joints and extremities.
4. Anorexia, nausea and not infrequently vomiting associated with ill defined abdominal distress. Constipation is more common at onset and diarrhea at the end of the disease and during convalescence.
5. Mild soreness of the throat and occasionally epistaxis.
6. Chilliness or short chills, but not real shaking chills, at the onset or during first two days.
7. Profuse perspiration during the course of the disease and preceding defervescence.
8. Giddiness or dizziness associated with great fatigue or weakness, especially during convalescence.

TABLE 1.—Duration of Fever in Experimental Phlebotomus and Dengue Fevers

Days of Fever	Phlebotomus Fever: Authors' Data Per Cent or Cases	Dengue: Simmons, St. John, Reynolds ¹⁸	
		Per Cent	Cases
Part of 1.....	6	0	0
1 to 2.....	22	2.5	2
2 to 3.....	43	3.7	3
3 to 4.....	20	12.3	10
4 to 5.....	4	10.8	16
5 to 6.....	2	45.7	37
6 to 7.....	1	13.6	11
7 to 8.....	0	1.2	1
8 to 9.....	2	1.2	1
Total.....	100	100.0	81

On physical examination one is frequently struck by the flushed or scarlet appearance of the face and neck, strongly resembling the acute erythema which follows sunburn. The conjunctival vessels may be decidedly congested, and this congestion is occasionally limited to the exposed portion of the ocular conjunctiva. The eyeballs may be very tender to the touch and painful on movement in any direction. In the mouth one may find congestion of the fauces, soft palate and posterior pharyngeal wall, but the pronounced swelling or redness of the tissues seen in bacterial infections of the throat was not encountered. Although some writers¹⁹ have described crops of vesicles without any inflammatory reaction at the junction of the hard and soft palates in natural cases of the disease, they were not observed in this series of experimental cases. Nasal catarrh and bronchitis are not a part of this disease. No objective evidence of nuchal rigidity was observed in any patient complaining of pain or stiffness in the back of the neck. The skin is hot and excepting the erythema of the face, neck and occasionally of the anterior part of the chest (and the papules resulting from insect bites on the exposed parts which may sometimes be found in natural cases) rarely present a true rash. There are certain exceptions, however. In the present experi-

18. Simmons, J. S.; St. John, J. H., and Reynolds, F. H. K.: Experimental Studies of Dengue, Philippine J. Sc. 44: 1, 1931.

19. Birt, C.: Phlebotomus Fever, Brit. M. J. 2: 168, 1915. Walker, A. S., and Dods, L.: Clinical Impressions of an Epidemic of Sandfly Fever in Palestine During 1940, M. J. Australia 1: 345, 1941.

mental series inoculated with serum virus 1 patient presented a generalized rash resembling both urticaria and erythema multiforme during the entire febrile period, which in his case was five days. Another presented an erythematous, maculopapular eruption which appeared on the second day of the fever over the lower halves of the posterior aspect of both thighs; the papules ranged in size from 2 to 8 mm. in diameter, were confluent in part and faded on pressure; there was no itching, and it became scaly on the fifth day. Certain other patients presented minute, indefinite erythematous blotches about the sebaceous follicles especially low in the axillas, on the lateral aspects of the chest and abdomen and around the elbows and knees. One patient presented large purpuric areas which appeared spontaneously around both knees. It should be stressed, however, that 90 to 95 per cent of the cases presented no eruptions of any kind. Occasional skin rashes of similar type were also observed by one of us (A. B. S.) in natural cases of the disease among

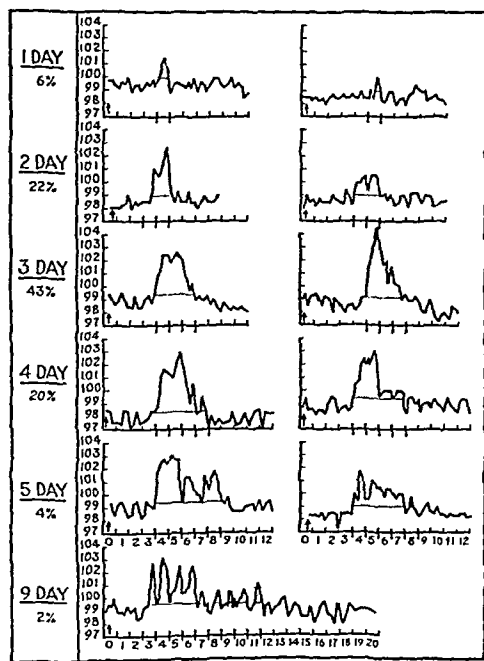


Fig. 3.—Various types of fever produced by experimental inoculation of *Phlebotomus* fever virus in human beings.

American troops in Sicily. Franz, writing in 1909 in the monograph by Doerr, Franz and Taussig,¹ makes similar observations and states that when careful examination was made some sort of skin involvement could be found in about 30 per cent of the cases, exclusive of the facial erythema and insect bites. It may be of interest that herpes simplex did not develop in any of our experimental cases, and we have seen it only once among some hundreds of natural cases.

The remainder of the physical examination was as a rule negative. The liver and spleen were not palpable. It is noteworthy that lymphadenopathy, which is common in natural and experimental dengue,¹⁸ did not occur or was uncommon in *Phlebotomus* fever.

The systemic symptoms disappear in some while the temperature is still elevated, while in others they may persist after defervescence. Convalescence is variable—some feel fit even before the fever has completely returned to normal, while others remain giddy, weak and depressed for varying periods thereafter.

Complications or Sequelae.—Only a few complications developed among more than 100 of our experimental cases. Two patients developed urinary retention at the end of the febrile period requiring catheterization; this lasted only a few days, however. One of the volunteers, who had "encephalitis with diplopia" six years before, again developed diplopia of about one week's duration during his convalescence from *Phlebotomus* fever. In 1 of the patients who had fever for nine days (fig. 3) with characteristic leukopenia an x-ray film of the chest taken ten days after onset revealed a large area of consolidation in the basal portion of the right upper lobe. This was not associated with any symptoms of lower respiratory involvement since there was no cough, expectoration, pain in the chest, dyspnea or increased respiratory rate. The consolidation had resolved to a considerable extent nine days later. With these exceptions, recovery was uneventful in all instances.²⁰

CLINICAL LABORATORY DATA

Observations were made on the urine, the cerebrospinal fluid and the blood, including determinations of the erythrocyte sedimentation rate, serum phosphatase and the Hanger²¹ cephalin-cholesterol flocculation test for liver damage.

Urine.—The urine of a number of volunteers was tested daily during the course of the disease and convalescence without the discovery of any abnormalities. The occasional dark color seemed to be due to concentration; tests for bile were uniformly negative. No real albuminuria was encountered during the febrile period; in less than 3 per cent there was a transitory faint trace reaction.

Cerebrospinal Fluid.—Lumbar punctures were performed on 5 volunteers: 2 on the first day and 3 on the second day of the disease. The cerebrospinal fluid was not under increased pressure and was normal as regards cells, protein, sugar, chlorides and the colloidal gold test. Inoculation of this fluid into susceptible human beings did not produce the disease, while the blood serum from the same volunteers did.

Blood.—No change in the number or character of the erythrocytes was found. The changes in the leukocytes, however, constitute the only positive clinical laboratory finding in this disease. During the course of this investigation it was realized that repeated total and Schilling differential leukocyte counts were necessary to establish whether or not the disease had been produced in any 1 individual. To date approximately 2,000 total counts and smears have been studied on over 150 human beings, and the following remarks will be based entirely on the observations made on persons with the experimental disease. The occurrence of a leukopenia in this disease has been known for many years¹ and the appearance of many immature neutrophils in natural cases has been reported more recently.²² However, the quantitative relationships of the various types of cells to one another at different times during the febrile period and convalescence have not been sufficiently appreciated heretofore and are of the greatest

20. One pool of serums obtained from patients in the Middle East apparently contained the "virus" of infectious hepatitis as well as that of *Phlebotomus* fever. Four of 10 volunteers inoculated with the *Phlebotomus* fever virus developed jaundice two to four months later. The "virus" of infectious hepatitis seems to have been eliminated, however, by one passage through *Phlebotomus papatasi*.

21. Hanger, F. M.: Serological Differentiation of Obstructive and Hepatogenous Jaundice by Flocculation of Cephalin-Cholesterol Emulsion. *J. Clin. Investigation* 18: 261, 1939.

22. Kennedy, W. P.: The Leukocyte Picture in Iraq. *Tr. P. S. Trop. Med. & Hyg.* 31: 369, 1937.

importance in aiding diagnosis. The following points learned during the present investigation can be of great help in the diagnosis of *Phlebotomus* fever:

1. The disease may or may not be associated with a true leukopenia, but a pronounced relative and absolute reduction in the number of segmented neutrophils associated with a simultaneous definite relative and absolute increase in immature neutrophils (chiefly the staff cells) is a constant phenomenon (tables 2 and 3).

2. When leukocyte counts are done daily during the febrile and postfebrile periods a leukopenia, i. e. a reduction to below 5,000 cells per cubic millimeter from a higher normal level, may be expected in approximately 90 per cent of the cases.

cells increase to a point at which they usually outnumber the segmented cells.

6. Unless differentiation is made between the segmented and the immature cells (or filament and non-filament cells) the significant changes in the neutrophils may be missed, since the total percentage of these cells may never be less than 50 to 60. A reduction in neutrophils to as low as 30 per cent, even when the total leukocyte count is less than 5,000, is not compatible with a diagnosis of *Phlebotomus* fever unless the immature cells make up a large proportion of all the neutrophils.

7. The changing relationships between the different types of cells at various stages of the disease shown

TABLE 2.—Changes in Leukocytes During the Course of Experimental *Phlebotomus* Fever Associated with the Development of Leukopenia

C. Sna., white woman aged 41

	Before Inoculation	Period						
		Day of Fever			Day of Defervescence			
		1	2	3	2	4	6	9
Maximum temperature, degrees Fahrenheit.....	99.4	104.5	102.0	100.0	99.4	99.2	99.0	99.2
Total number of leukocytes.....	7,200	5,900	4,700	3,800	4,450	4,300	6,350	7,600
Differential—per cent								
Neutrophils, segmented.....	40	29	7	12	7	26	40	44
Immature { Band (staff).....	10	49	43	26	34	27	18	13
{ Juveniles.....	..	2	..	1	2	3	..	..
{ Myelocytes.....	..	..	..	..	..	1	2	..
Lymphocytes.....	47	16	45	55	46	35	31	37
Monocytes.....	3	4	5	6	8	8	8	6
Eosinophils.....	..	..	..	..	3	..	1	..
Basophils.....	..	..	..	..	..	..	..	..

TABLE 3.—Changes in Leukocytes During the Course of Experimental *Phlebotomus* Fever Without the Development of True Leukopenia

C. And., white man aged 39

	Before Inoculation	Period						
		Day of Fever			Day of Defervescence			
		1	2	3	1	2	3	4
Maximum temperature, degrees Fahrenheit.....	99.4	100.4	102.4	101.2	99.3	99.2	99.0	99.2
Total number of leukocytes.....	7,600	8,600	8,500	7,050	5,250	5,400	8,050	7,100
Differential—per cent								
Neutrophils, segmented.....	43	46	14	25	19	18	44	39
Immature { Band (staff).....	7	34	51	57	38	39	22	22
{ Juveniles.....	..	4	6	2	3	1	1	2
{ Myelocytes.....	..	..	..	..	..	..	1	1
Lymphocytes.....	46	12	21	15	35	38	25	31
Monocytes.....	2	3	6	..	5	3	6	3
Eosinophils.....	1	1	1	..	..	1	1	1
Basophils.....	1	..	1	1	..	..	..	1

3. A leukopenia is rarely encountered on the first day of the fever but is more often seen later, especially at the end of the fever and during the first two days of the postfebrile period (fig. 4).

4. The characteristic finding on the first day of the fever is a total count within normal limits, a relative and absolute decrease in the lymphocytes, and a relative and sometimes absolute increase in neutrophils which is due to an increase in immature cells. The total number of segmented neutrophils is usually not decreased at this time.

5. During the second or third days of the fever the number of lymphocytes begins to return to normal and for a few days thereafter may constitute 40 to 65 per cent of the total. At the same time the number of segmented neutrophils begins to drop and the immature

in figures 5 and 6 are more important for diagnosis than any single observation. The normal picture usually returns five to eight days after defervescence. The dromedary type of curve for the immature cells is commonly found when daily counts are done. There appears to be a point, during the febrile or postfebrile periods, at which both the immature and the segmented neutrophils are decidedly depressed.

8. Degenerative changes, in the form of toxic granules and vacuolation of the cytoplasm, may be seen in the neutrophils, but they are not sufficiently constant or striking to be useful in diagnosis.

9. The monocytes are usually normal in number and appearance. In certain patients, however, they increase in number to constitute 16 to 40 per cent of all the leukocytes during the febrile and early postfebrile periods.

10. The eosinophils occasionally disappear during the course of the disease. An eosinophilia during convalescence was encountered only among those who had it before inoculation.

Erythrocyte Sedimentation Rate.—Although the number of determinations has not been large, it was found that the erythrocyte sedimentation rate may be unaffected in some even after several days of high fever, while in others a slight to moderate increase in sedimentation may occur.

Phosphatase and Hanger Cephalin-Cholesterol Flocculation Test for Hepatic Damage.—Serum phosphatase determinations on 5 subjects on the 1st, 3d, 4th or 5th days after onset of the fever yielded normal values, i. e. 2.1 to 5.4 Bodansky units per hundred cubic centimeters. The Hanger cephalin-cholesterol flocculation test was carried out with fresh serums obtained on the day of test (an important precaution) in 16 cases of the experimental disease. The serums tested were obtained on the 1st, 3d, 4th, 5th, 6th, 7th, 9th or 10th day after onset of fever. The twenty-four hour readings, which were considered most reliable, were negative. Plus-minus to 1 plus reactions at forty-eight hours were encountered in 6 of the patients and were not considered significant. Since the Hanger test has been found positive in malaria (therapeutic²³ and natural²⁴) and in infective hepatitis,²¹ the negative results obtained in *Phlebotomus* fever may on occasions be useful in differential diagnosis.

RECURRENCES

The fact that relapses or recurrences of the disease may occur with varying frequency during convalescence or later has been stressed by a number of careful clinical

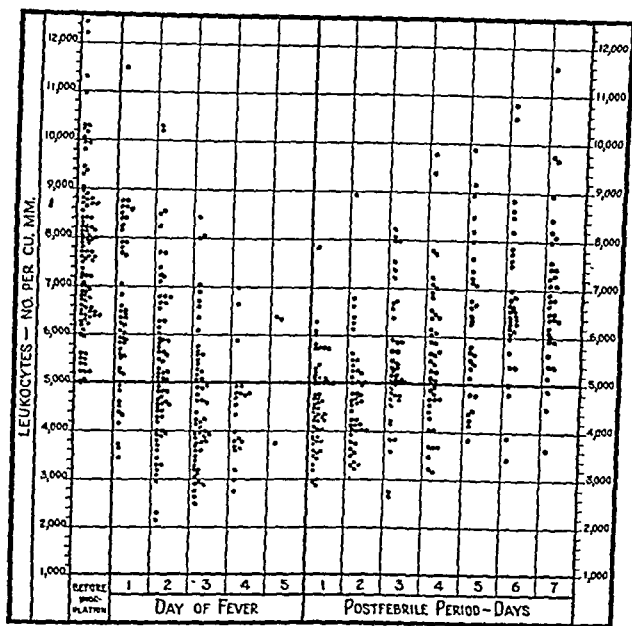


Fig. 4.—Leukocyte counts in 100 cases of experimental *Phlebotomus* fever.

observers.²⁵ Circumstantial evidence suggested that secondary infection resulting from further *Phlebotomus* bites need not be a factor, while premature return to

23. Kopp, I. and Solomon, H. C.: Liver Function in Therapeutic Malaria, *Am. J. M. Sc.* 205: 90, 1943; unpublished data from Third (New York University) Research Service, Goldwater Memorial Hospital, New York.

24. Mirsky, I. A.; von Brecht, R., and Williams, L. D.: Hepatic Dysfunction in Malaria, *Science* 99: 20, 1944.

25. Doerr, Franz and Taussig, J. Young, Richmond and Brendish.¹⁵ Walker and Dodge.¹⁶

strenuous physical activity was believed to favor a higher incidence of such recurrences.²⁶ During the present investigation at least 5 instances of multiple cycles of fever following a single inoculation of virus were detected among patients whose temperature was recorded for seven to eight days after defervescence

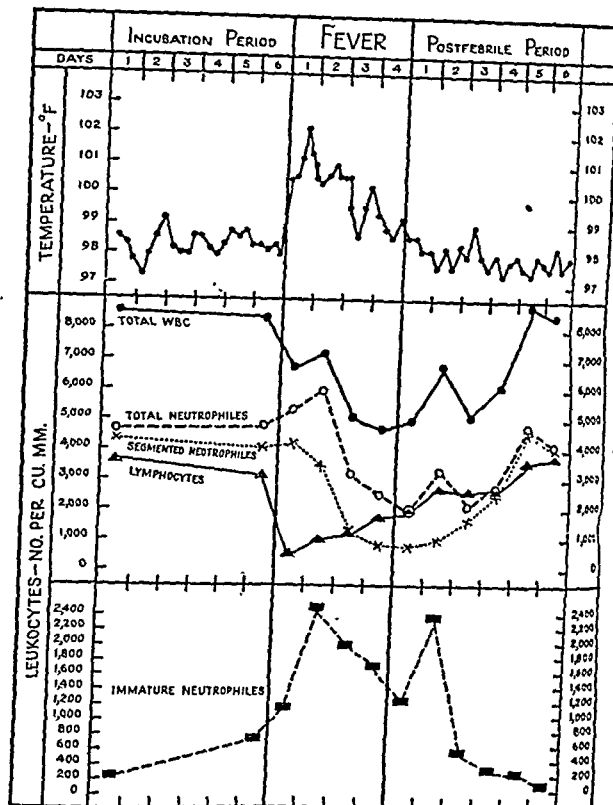


Fig. 5.—Experimental *Phlebotomus* fever in T. Gr., a Negro aged 50.

(fig. 7). A careful check of these patients revealed no other cause for the fever. It is noteworthy, however, that the characteristic changes in the leukocytes were not observed during the subsequent cycles of fever, even though 1 of the patients, Kne., had a low total count on two days. In patient Kal. the virus was demonstrated in the blood four days after inoculation during the first rise in temperature but not thirteen days after inoculation when his second cycle of fever began despite the fact that larger amounts were subinoculated into 2 susceptible subjects. An attempt to produce two cycles of fever by giving two inoculations of virus at an interval of three days yielded negative results in 5 subjects (fig. 2, subjects Ber., Dem., Rog., Ber. and Pri.).

DIAGNOSIS

The following attempts were made to find a specific diagnostic test, but with negative results:

1. Precipitin reaction in which the antigen was either acute stage serum or an extract of presumably infected *Phlebotomus* papatasi and the antibody consisted of convalescent serum from natural or experimental cases.

2. Complement fixation reaction in which, in addition to the antigens tried in the precipitin test, allantoic fluid and yolk sac suspensions derived from inoculated embryonated eggs were also employed.

3. Skin test utilizing fresh and heated infectious serums.

In the search for a nonspecific reaction, tests for the capacity of acute and convalescent serums to agglutinate

26. Doerr, Franz and Taussig, J. Brit.¹⁷

or hemolyze chicken or sheep erythrocytes and tests with human type O cells for cold agglutinins were carried out with negative results.

In the absence of a specific test for the individual case, the diagnosis of Phlebotomus fever must be made on clinical and epidemiologic grounds. The occurrence in a number of individuals of a clinical syndrome together with changes in the leukocytes of the type described, during the summer or autumn months in a country known to harbor Phlebotomus flies, may reasonably warrant the diagnosis of an outbreak of Phlebotomus fever. Dengue, which is perhaps more closely related to Phlebotomus fever than any other disease, usually has to be considered in the differential diagnosis of an epidemic in those localities in which both fevers may occur. The following differences observed in the experimentally reproduced diseases may be useful in the differential diagnosis of epidemics of the two fevers:

1. In Phlebotomus fever more than 80 per cent of the cases are made up of two, three and four day fevers, while in dengue approximately 80 per cent of the cases exhibit five, six or seven day fevers.
2. Lymphadenopathy is common in dengue, uncommon or absent in Phlebotomus fever.
3. While certain cases of dengue may not exhibit a rash, it is nevertheless common in dengue and exceptional in Phlebotomus fever. The diagnosis of a dengue epidemic in which rash is uncommon is not acceptable without experimental proof of the identity of the virus.

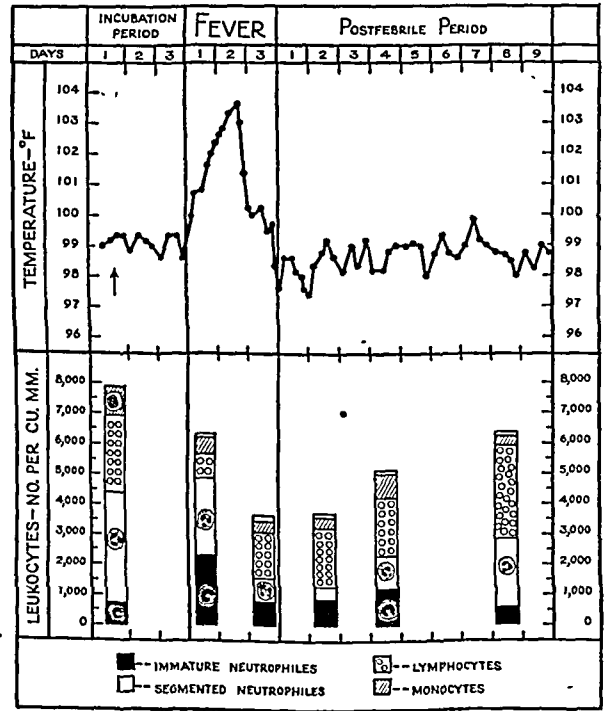


Fig. 6.—Experimental Phlebotomus fever in R EI, a white youth aged 18.

The question of whether an outbreak of a febrile disease among American troops was dengue or Phlebotomus fever came up in Sicily, especially because it occurred at a time when the vectors of both diseases were prevalent and occasional cases with ill defined rashes were observed. An investigation of this outbreak revealed that the clinical manifestations were compatible with those of experimental Phlebotomus

fever, and the virus isolated from the blood of those patients was established as one of Phlebotomus fever on the following grounds:

- (a) The experimental disease in human beings was identical with that produced by Phlebotomus transmitted virus.

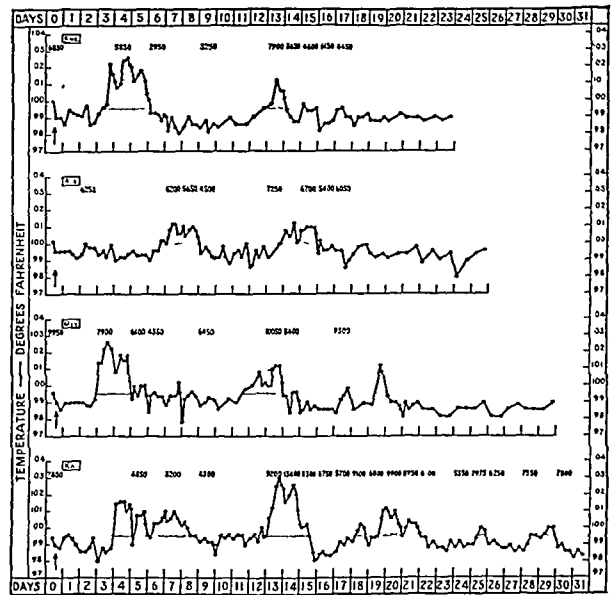


Fig. 7.—Multiple cycles of fever after a single injection of Phlebotomus fever virus in human beings.

- (b) Aedes aegypti mosquitoes were unable to transmit the disease from one human being to another.

- (c) Complete cross immunity was demonstrated between the Sicilian virus and the Middle East Phlebotomus transmitted strain in tests on human beings recovered from infection with one or the other virus.

Influenza epidemics rarely if ever occur during the hot summer months. In individual cases the differential diagnosis between Phlebotomus fever and pharyngitis with fever, so-called grip, and gastroenteritis should be facilitated by suitable leukocyte counts and Schilling differentials. One of us (A. B. S.) has studied the leukocyte picture in a number of cases of pharyngitis or tonsillitis with fever and so-called grip consisting of one or two day fevers without obvious respiratory involvement, at intervals during the febrile and postfebrile periods, and found that differentiation from Phlebotomus fever was possible in every case; the total leukocyte counts either remained within normal limits or were increased, and although an increase in the number of immature neutrophils frequently occurred it was never accompanied by the pronounced reduction in the number of segmented (filament) cells which is the characteristic change during the later stages of Phlebotomus fever. In certain outbreaks of infectious hepatitis individual cases may be erroneously diagnosed as Phlebotomus fever during the febrile, preicteric stage. Not enough is known about Schilling differential counts during the preicteric phase of infectious hepatitis to indicate whether or not differentiation may be possible by this method; however, the Hanger cephalin-cholesterol flocculation test may be tried, although it is not yet known how frequently it is positive in the preicteric stage.

In localities where malaria and Phlebotomus fever occur simultaneously and when, because of the pressure of events, antimalarial therapy may be administered

in the absence of a positive smear or characteristic history; many cases of *Phlebotomus* fever are erroneously diagnosed as malaria (Birt¹⁹ and personal observations). The influence of greater familiarity with the disease and of the withholding of antimalarial therapy until the diagnosis was established by positive smear

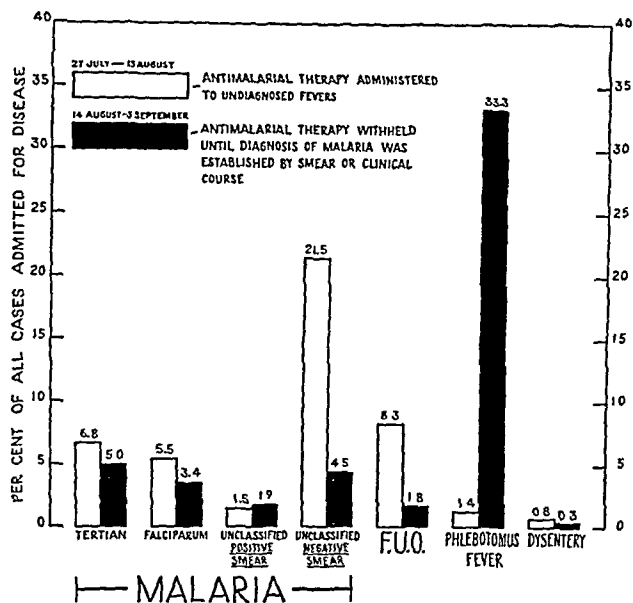


Fig. 8—Diagnosis of *Phlebotomus* (*pappatasi*) fever in an evacuation hospital in Sicily. Influence of different use of antimalarial therapy and of increased familiarity with the disease on the incidence of diagnosis

or clinical course on the incidence of the diagnosis of *Phlebotomus* fever in an evacuation hospital in Sicily is illustrated in figure 8. The change in the number diagnosed as *Phlebotomus* fever from 1.4 per cent to 33½ per cent of all cases admitted for disease may be seen to be derived largely from the fevers diagnosed as unclassified, negative smear, malaria or fever of unknown origin.

IMMUNITY

In view of the fact that multiple attacks during the same season or in subsequent seasons are so frequently claimed, there are those who doubt that a single attack of the disease produces any appreciable immunity. It is a common experience, however, that groups which have sustained epidemics of *Phlebotomus* fever and which remain in infected areas are immune during subsequent seasons at a time when fresh groups, newly arrived in the area, are being infected. Our own investigations yielded the following information:

1. Nineteen subjects inoculated a second time with virus of proved potency at intervals of seventeen days to four months after the first experimental attack of the disease were all immune (1 tested at seventeen days, 8 at four and six weeks, 10 at four months).

2. Two physicians²⁷ residing in the United States, who gave a history of two natural attacks of the disease while in Palestine four to seven years before, were given an inoculation of the Middle East strain of the virus simultaneously with some of the aforementioned subjects. One of them developed a typical case of average severity, while the other had a mild abortive attack lasting only a few hours.

3. Complete cross immunity between the Middle East and Sicilian strains of the virus was demonstrated in

tests carried out six weeks and four months after the initial attack.

4. People recovering from so-called grip or fevers associated with inflammation of the respiratory tract were not resistant to inoculation with *Phlebotomus* fever virus in subsequent weeks.

5. Thus far tests for neutralizing antibody have been irregular. It is possible that such antibody exists only in small amounts, and further studies are necessary before an unequivocal statement can be made.

Our attempts to produce immunity without giving rise to the disease yielded the following results:

1. Persons inoculated intracutaneously or intravenously with amounts of virus too small to produce the disease were with one possible exception susceptible to reinoculation.

2. Persons who failed to develop the disease after subcutaneous or intramuscular inoculation with amounts of virus that are infective by the intracutaneous route were immune on reinoculation.

3. Although reproducible results have not yet been obtained on the inactivation of the virus by ultraviolet light, all of 11 persons who had failed to develop the disease following intracutaneous injection of virus irradiated with ultraviolet light were found to be immune on reinoculation with virus of proved potency.

PROPHYLAXIS

Although a good deal more remains to be learned about the bionomics of *Phlebotomus papatasi*, certain steps may reasonably be taken against these insects in an attempt to prevent outbreaks of the disease or to modify their course once they have developed:

1. Sleeping quarters should be on as high ground as practicable, on open, dry, sandy ground when feasible, and as far away from the native dwellings and domestic animals as possible. The more breeze in a given location the better.

2. Whenever possible the area occupied by sleeping quarters and that within a radius of 50 to 100 yards around it should be free of rubble, detritus, gardens.

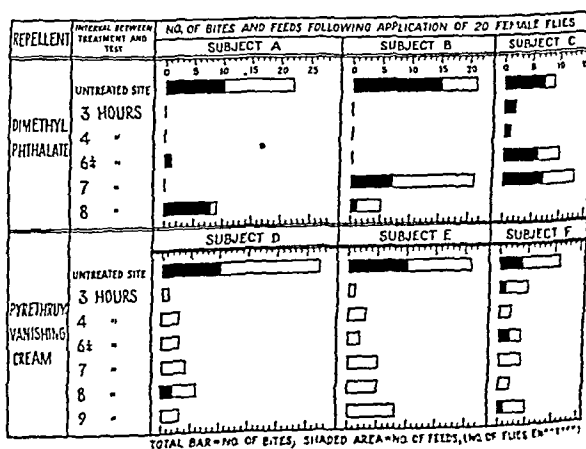


Fig. 9—Protective effect of two repellents against *Phlebotomus papatasi*

vegetation and needless earthen walls or banks. The ground surfaces in such an area should be leveled and rendered as impermeable as practicable by filling in and stamping down cracks in the earth or by tarring or cementing, especially in permanent installations. Whenever that is not practical or impossible it may be worth while to attempt to render the ground unsuitable for breeding by oiling with waste motor oil or crude

27. Drs. Helen Glueck and Irving Dunsky of Cincinnati volunteered for these tests.

oil or by application of creosote; sandbag walls and embankments should receive the same treatment.

3. Inside the sleeping quarters it is advisable to (a) eliminate cracks and crevices in the walls or, when that is not feasible, spray them with cresol or other available insecticide, (b) reduce all fixtures to a minimum, (c) keep bed, kits and clothing away from walls where the insects usually seek protection during the daytime, (d) use the pyrethrum bomb spray, (e) utilize electric fans to best advantage whenever available and (f) use sleeping nets of fine enough mesh (more than 45 to the inch) whenever that does not interfere with sleep.

The effectiveness of two repellents which may be applied to the exposed skin surfaces was investigated in collaboration with Drs. S. Adler and S. Arkin of the Hebrew University in Palestine. Some of the data shown in figure 9 indicate that both dimethyl phthalate and a pyrethrum vanishing cream were capable of affording considerable protection to a treated skin site for six to seven hours or longer. Tests carried out in sleeping rooms in which 150 to 200 female *Phlebotomus papatasi* flies were released indicated that both of these repellents, properly applied to all exposed surfaces, were effective during an eight hour period of sleep. Dimethyl phthalate was tested by two of us (J. R. P. and C. B. P.) during a small outbreak of *Phlebotomus* fever in the Middle East, and none of those who used it regularly at night during a five week experimental period acquired the disease. A sufficient number of those who used either nothing or a control inactive solution developed the disease in the same barracks during the same period to render the results statistically significant.

SUMMARY

1. *Phlebotomus* (pappataci or sandfly) fever is a disease of military importance because it occurs in many parts of the world where troops are stationed and because it can incapacitate large numbers of persons at a time for seven to fourteen days.

2. It occurs during the hot, dry seasons and is characterized in most instances by a fever of two, three or four days' duration, severe frontal headache, pain in the eyes, which are tender to touch and on movement, photophobia, pain in the back and extremities associated with characteristic changes in the leukocytes.

3. It is caused by a filtrable virus which is present in the blood for at least twenty-four hours before and after the onset of fever but is no longer detectable forty to forty-eight hours thereafter.

4. The virus is of small size (probably in the same range of magnitude as that of yellow fever) and, while it is readily transmissible to human beings, it has not yet been found to be infectious for any of a large variety of animals which have been tested. The virus has been preserved for at least six months in the frozen or lyophilized states.

5. The only proved vector of the disease is a small, hairy, two winged midge, *Phlebotomus papatasi*. *Aedes aegypti* and *Culex pipiens* mosquitoes and human fleas *Pulex irritans* did not transmit the disease from one human being to another in a number of tests.

6. People recovering from an experimental attack of the disease were immune to reinoculation for at least four months thereafter.

7. Two strains of virus, one isolated in the Middle East and the other in Sicily, were proved to be immunologically identical.

8. Virus irradiated by ultraviolet light has been found capable of producing immunity without giving rise to the disease.

9. Dimethyl phthalate and a pyrethrum containing vanishing cream applied to the exposed skin surfaces were both found to be effective repellents for *Phlebotomus papatasi*.

STUDIES OF BLOOD PRESSURE IN ARMY OFFICERS

OBSERVATIONS BASED ON AN ANALYSIS OF THE
MEDICAL RECORDS OF 22,741 OFFICERS OF
THE UNITED STATES ARMY

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During the past two years large numbers of men have been examined, under the auspices of the Selective Service System, to determine their fitness for active military duty. A recent study¹ has shown that about one fourth of those rejected for cardiovascular reasons were disqualified because of hypertension. The range of the normal blood pressure, both systolic and diastolic, is still not clearly defined; and critical levels, above which it is unsafe or unwise to accept a registrant, have not been established on a sound, factual basis. Transient, "emotional" elevations of blood pressure have been recognized but discounted by the Army. In Mobilization Regulations 1-9, issued by the War Department on Oct. 15, 1942, it is stated that, "if the blood pressure appears to be abnormally high, it will be measured after the subject has rested in the recumbent position." A cause for rejection is "a persistent blood pressure at rest above 150 mm. systolic or above 90 diastolic, unless in the opinion of the medical examiner the increased blood pressure is due to psychic reaction and not secondary to renal or other systemic disease."

At a meeting of the Subcommittee on Cardiovascular Diseases of the National Research Council, held in Washington in June 1942 and attended by representatives of the Army, the Navy, the Public Health Service, the Selective Service System and the Veterans Administration, the advisability of modifying certain of the existing criteria of physical fitness was considered. The urgent need for manpower made it imperative to recruit all eligibles who could serve with safety to them-

This is the first in a series of papers reporting these studies.

Drs. Levy, Stroud and White are members of the Subcommittee on Cardiovascular Diseases, National Research Council.

The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Columbia University.

Major Robert S. Gearhart, Medical Corps, United States Army, aided in guiding the work of the secretaries who transcribed the data from the original records to the special statistical forms. Miss Dorothy Kurtz, Supervisor of the Record Department of the Presbyterian Hospital, New York, directed the statistical analyses and helped in the preparation of the tables. Dr. John W. Fertig, Professor of Biostatistics, Columbia University College of Physicians and Surgeons, served as adviser in the final presentation of the material.

1. Levy, R. L.; Stroud, W. D., and White, P. D.: Report of Reexamination of 4,994 Men Disqualified for General Military Service Because of the Diagnosis of Cardiovascular Defects, *J. A. M. A.* 123:937 (Dec. 11), 1029 (Dec. 18) 1943.

selves and with advantage to the armed forces. With respect to the upper limits of blood pressure, it was suggested by some that these might be raised, whereas others claimed that the existing levels were too high. As a result of the discussion, it became clear that a change in either direction was not justified on the basis of the evidence at hand; for there was no large series of observations carried out over long periods of time.² To obtain the lacking information as quickly as possible seemed highly desirable.³

It was known that, in the Office of the Surgeon General of the Army, there were filed abstracts of the medical records of some 23,000 officers, on which were noted the results of annual physical examinations made between January 1924 and December 1941. Appended to many of these were the detailed reports of special examining boards, submitted on the occasion of promotion or retirement or of examination incident to hospitalization. Often electrocardiograms and teleroentgenograms were made at such times, and other laboratory procedures were employed. In many cases the record began with the admission of the young man, as a cadet, to West Point. Annual examinations were discontinued in 1941 owing to the pressure of work essential to the war. No examinations were made after an officer had retired unless he applied for reinstatement for active duty. Samples of these records were inspected, and it was at once apparent that there was a valuable storehouse of material.

To supplement the histories in the Surgeon General's Office, Col. Albert G. Love, Medical Corps, United States Army, kindly offered to place at our disposal his notes on the medical records of 5,000 officers who were in the service on Jan. 1, 1901 and also those commissioned between that time and Dec. 31, 1916. These had been analyzed, in collaboration with Professor Lowell J. Reed of the Johns Hopkins University, and the results published in 1931 and 1932 in a series of papers dealing with "Biometric Studies on U. S. Army Officers." It seemed probable that the use of these earlier notes, particularly those pertaining to blood pressure, might lengthen the period of observation in some of the cases included in the larger series. Reference to the conclusions of Reed and Love will be made in appropriate places.

The availability of this material appeared to offer an unusual opportunity to study variations of blood pressure during the passage of a number of years and to relate them to various other factors. Of particular immediate importance was the significance of transient hypertension. Additional topics for consideration which at once came to mind were the later course of those who developed sustained hypertension, the relationship between body weight and hypertension, and the significance of tachycardia, both transient and sustained. These could all be correlated with disability retirement and mortality rates at various ages, with the causes of retirement and death and, in those who died, with the findings at necropsy.

It was realized that the type of subjects studied imposed certain limitations on the universal applicability of the results of the analysis. All were men, they

represented a group originally selected because they were physically qualified according to certain rigid standards, and they lived under the special conditions of military service, both at home and in the field. However, it should be stressed that the primary aim of this investigation was to obtain information useful to the

TABLE 1.—*Status at Time of Study*

	Number	Per Cent
Total cases ..	22,741	100
On active duty.	15,998	70.3
Retired but still living—total	4,003	17.6
Retired for disability	1,994	8.8
Died—total	2,292	10.1
After retirement for disability	659	2.9
Autopsy reported	639	2.8
Status unknown—left service ..	448	2.0

TABLE 2.—*Age Distribution at First Examination*

	Number	Per Cent
Total cases ..	22,741	100
Under 25 years	8,232	36.2
25 to 29 years	4,617	20.3
30 to 34 years	3,846	16.9
35 to 39 years	2,208	9.7
40 to 44 years	1,857	8.2
45 to 49 years	1,281	5.6
50 to 54 years	684	3.0

Army; of secondary importance, though of equal interest, was the desire to contribute to the general knowledge of the problems involved.

PLAN OF PROCEDURE

On Sept. 12, 1942 a contract, recommended by the Committee on Medical Research, was made between the Office of Scientific Research and Development and Columbia University, providing funds for this study. Dr. Levy was appointed chairman of the project.

A statistical form was devised for recording the necessary data. Ten secretaries with special qualifications for the task were chosen and installed in a room in the Office of the Surgeon General. It was necessary that the clerical work be carried out there, since the records were in daily use. The information contained in each officer's medical folder was transcribed by the secretaries to a statistical sheet. Each clerk was given a typed set of directions containing definitions of the terms employed and criteria for the diagnoses. These criteria will be cited where they apply to the topics under discussion.

The completed forms were shipped to the Record Room of the Presbyterian Hospital in New York, where the data were transferred to punch cards. The final statistical analyses were then made by machine.

GENERAL ANALYSIS OF MATERIAL

A total of 22,741 records proved to be suitable for study. In 1,821 of these supplemental information was obtained from Colonel Love's notes made prior to 1924. In some instances the final status of an officer was learned by reference to the 1943 edition of the Official Army Register. Original necropsy protocols were reviewed at the Army Medical Museum through the courtesy of Col. J. E. Ash, its director.

Status at Time of Study (table 1).—Of the total number of 22,741 men, 70 per cent were on active duty when the data were assembled, 17 per cent were

2. Statistics of life insurance companies are based largely on mortality experience following a single blood pressure reading and apply only in limited fashion to certain aspects of the present analysis.

3. A tentative plan of study was submitted at the meeting by Dr. E. V. Allen, member of the Subcommittee on Cardiovascular Diseases, National Research Council, and Dr. E. A. Hines Jr. of the Mayo Clinic. This was modified materially with respect to both scope and procedure as the project matured.

retired and still living and 10 per cent were dead. Of the 2,292 who had died, an autopsy report was available in 639 (28 per cent). In only 2 per cent of the total number (448 cases) was the status unknown because the officer had left the service and could not be traced.

Age Distribution at First Examination (table 2).—The largest number of men, 8,252, or 36 per cent, were under 25 years of age and the numbers decreased progressively in the succeeding five year periods. Fifty-six per cent were under 30 years of age and 73 per cent were under 35 when first examined.

Length of Service at First Examination (table 3).—It has been customary for the War Department to file all reports of physical examination of officers in the Adjutant General's Office with other personnel records. In order to have this medical information more readily available for current use, the practice was begun in 1924 of transcribing essential data to cards filed in the Surgeon General's Office. The present series of studies is based largely on the data found on these cards. Since it has been impracticable for the Surgeon General's Office to review and abstract all officers' personnel records in the War Department, the records of officers already in the service in 1924 are incomplete. In 41 per cent of the total number of cases there was a report of medical examination during the first year of service. In 27 per cent the officer's physical condition was first recorded after he had been in the Army from five to nine years, and in 5 per cent no record was available until after twenty to twenty-four years of service.

Length of Observation Period (table 4).—A small number, 821, or 4 per cent of the total, were given only

TABLE 3.—Length of Service at First Examination

	Number	Per Cent
Total cases.....	22,741	100
Under 1 year.....	9,282	40.8
1 to 2 years.....	1,169	5.2
3 to 4 years.....	1,189	5.2
5 to 9 years.....	6,119	26.9
10 to 14 years.....	1,559	6.9
15 to 19 years.....	1,533	6.7
20 to 24 years.....	1,110	5.0
25 to 29 years.....	297	2.6
30 to 34 years.....	107	0.5
35 to 39 years.....	40	0.2
40 years or over.....	6	0.0

TABLE 4.—Length of Observation Period

	Number	Per Cent
Total cases.....	22,741	100
None—single examination.....	821	3.6
Under 1 year.....	278	1.2
1 to 2 years.....	1,161	5.1
3 to 4 years.....	2,644	11.6
5 to 9 years.....	3,825	16.8
10 to 14 years.....	3,904	17.2
15 to 19 years.....	5,671	24.9
20 to 24 years.....	1,023	4.5
25 years or over.....	414	1.8

a single examination. Seventy-two per cent were under observation from five to nineteen years, and 38 per cent (8,671) were observed from fifteen to nineteen years. In 1,437 cases, or 6 per cent of the total, the observation period was twenty years or over.

Distribution by Branch of Service (table 5).—Of the total number, 11 per cent (2,465) were transferred from one service to another during the period of obser-

vation, so that they were listed under more than one branch. The sum of the percentages, therefore, exceeds 100. However, the general distribution trend is evident.

Twenty-nine per cent were in the infantry, 13 per cent were in the air corps, 12 per cent were in the field artillery and 11 per cent were in the medical corps.

TABLE 5.—Distribution by Branch of Service

	Number	Per Cent
Total cases.....	22,741	100
Transfers from one branch to another.....	2,465	10.8
Infantry.....	6,736	29.6
Air Corps.....	2,967	13.1
Field Artillery.....	2,782	12.2
Medical Corps.....	2,463	10.8
Coast Artillery.....	2,120	9.3
Cavalry.....	1,808	8.0
Quartermaster Corps.....	1,372	6.0
Engineers.....	1,227	5.4
Sedentary work.....	625	2.7
Finance Department.....	211	0.9
Inspector General's Office.....	72	0.3
Judge Advocate General's Office.....	174	0.7
Adjutant General's Office.....	168	0.7
Signal Corps.....	551	2.4
Ordnance.....	431	1.9
Chemical Warfare.....	138	0.6
Chaplains.....	219	0.9
Tank Corps.....	18	0.1
Not specified.....	1,749	7.7

TABLE 6.—Rank at First Examination

	Number	Per Cent
Total cases.....	22,741	100
Warrant officer.....	1,734	7.6
West Point cadet.....	4,684	20.6
Second lieutenant.....	5,368	23.6
First lieutenant.....	4,366	19.2
Captain.....	4,111	18.1
Major.....	1,654	7.3
Lieutenant colonel.....	574	2.5
Colonel.....	244	1.1
Brigadier general.....	43	0.2
Major general.....	21	0.1
Lieutenant general.....	2	0.0
Not specified.....	2	0.0

The coast artillery, cavalry and quartermaster corps followed in this order. There were only 5 per cent in the engineers. Those whose work was of a sedentary character have been grouped together; they comprised less than 3 per cent of the total. In 8 per cent the branch of service was not specified.

Rank at First Examination (table 6).—As might have been anticipated, the largest number, 5,368, or 24 per cent, were second lieutenants when first examined. Next in order were West Point cadets 20 per cent, first lieutenants 19 per cent and captains 18 per cent. Seven per cent were warrant officers and 7 per cent were majors. Comparatively few, only 4 per cent, received their first examination as lieutenant colonels or when they had attained higher rank.

COMMENT

There is need for studies of blood pressure in persons observed over long periods of time. The reports of annual medical examinations of army officers afford suitable material, although it is recognized that they concern a selected group of male subjects. An analysis of 22,741 of these records has been undertaken. The purposes of the study, sources of the records, plan of procedure and a general survey of the material have been given; in subsequent papers various aspects of the work will be discussed in detail.

METHYL BROMIDE POISONING

WITH SPECIAL REFERENCE TO NERVOUS SYSTEM
MANIFESTATIONS

RUSSELL N. DeJONG, M.D.

ANN ARBOR, MICH.

Methyl bromide has been used extensively during recent years, first as a refrigerant, later as a fumigant and recently as a delousing agent. It is an insecticide of great effectiveness and wide application and is capable of protecting a wide variety of foods, shrubs, plants, grains and textiles. Its use is recommended by entomologists in the solving of insect control problems for many reasons: It leaves no residual odor or taste; it is convenient to handle and its fumes do not constitute a fire or explosion hazard when mixed with air under ordinary conditions of use; it is highly toxic to insects in all stages of development; it has a low absorption and high penetrating power; it is low in cost. There is increased interest in the use of methyl bromide at the present time as it has been found to be very effective in the extermination of lice and bedbugs, and it is being used for this purpose in the armed forces. The War Production Board has recently announced that it has been placed under allocation.¹

Methyl bromide (CH_3Br) is a colorless, odorless gas at ordinary temperatures and pressures. It has a specific gravity of 1.732 at 0 C., a molecular weight of 94.94, a melting point of -93 C. and a boiling point of 4.5 C. At ordinary temperatures it is approximately 3.3 times as heavy as air. It is soluble in most common organic solvents but is only slightly soluble in water. It has high chemical stability. In manufacturing it is compressed and put into containers as a liquid and can be withdrawn as a liquid which immediately vaporizes. It is known to be toxic to human beings if its vapors are inhaled, and the Division of Industrial Hygiene, National Institute of Health, United States Public Health Service, has advised the following precautionary measures: avoidance of breathing the gas; thorough ventilation of cars, rooms or buildings on completion of fumigation; the use of a gas mask or positive pressure hose when exposure is necessary; avoidance of spillage with removal of clothing that has become impregnated; care in storage. Manufacturers are also aware of the toxicity of methyl bromide, and care is used in the preparation and utilization of the substance.

The toxic effects of methyl bromide are well known. In experimental animals it has been found to be the most toxic, both in high concentration and short exposure, and in low concentration and long exposure, of four organic halides—methyl bromide, methyl chloride, ethyl bromide and ethyl chloride.² Irish, Adams, Spencer and Rowe³ found that warm blooded animals can survive fairly high concentrations for brief periods of time, but longer exposure leads to pulmonary irritation with congestion and edema, often developing into

typical confluent bronchopneumonia. Lower concentrations with prolonged exposure result in excitability, muscular tremors and even paralysis, from which the animals can recover completely when removed from the gas. Sayers, Yant, Thomas and Berger² found that animals exposed to methyl bromide developed respiratory difficulty, irritability, unsteadiness, excitement and convulsions. Pathologically these animals, showed degeneration of the heart muscle, congestion and hemorrhage of the lungs, and congestion of the kidneys, spleen and liver. The brain and meninges also were congested. These changes were more apparent after long exposure to low concentrations than after brief exposure to high concentrations.

While there is little information regarding the level of response to methyl bromide vapor in human beings, it is known from animal experiments that care must be used in handling the substance.³ Cases of methyl bromide poisoning in human beings have been reported, some with fatal termination, but most reports are from the foreign literature and the conditions of exposure are not adequately described. The paucity of reports of methyl bromide intoxication in this country may be due to the precautions used in manufacturing and dispensing it, although in the past the substance has not been in as great use in this country as in Europe. Jaquet⁴ in 1901 reported 1 case with vertigo, weakness and temporary visual disturbances following a brief exposure, and 2 cases with similar symptoms plus asthenia and psychic disturbances following longer exposure. Steiger⁵ in 1918 reported 1 case with delayed nervous system symptoms. A case with prostration and apathy with a history of repeated poisonings was reported by Cade and Mazel⁶ in 1923 and a fatal case by Glaser⁷ in 1928. In all some 42 cases have been reported, of which 12 proved fatal, 23 were reported as recovered, and in 7 the information is incomplete.⁸ Symptoms referable to the nervous system appear to be typical for methyl bromide poisoning. They vary from individual to individual but are manifest as headache, vertigo, pareses or paralyses, visual disturbances, delirium, psychic disturbances and even convulsions and coma. There may be some individual predisposition. Acute poisoning usually results in pulmonary irritation leading to bronchial pneumonia. Watrous⁹ in 1942 made a study of 90 persons who worked with methyl bromide in a filling and sealing room during a two weeks period. Here the concentration of the vapor was less than 35 parts per million of air, a concentration well in the range that is considered to be "safe." He found localized and mild systemic toxic effects in 31 persons. Anorexia, nausea and vomiting were seen most frequently, then headache, vertigo, difficulty in focusing the eyes, lethargy, gastrointestinal symptoms, muscular pains, faintness and dimness of vision. He also noticed a characteristic vesicular burn, resembling a second degree burn, that occurred when liquid methyl bromide came in direct contact with the skin, and a late itching dermatitis that resulted from contact.

From the Department of Neurology, the University of Michigan Medical School and University Hospital.

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Methyl bromide is less toxic than some fumigants and insecticides, but it does present a definite toxic hazard, especially as it does possess sufficient warning properties to prevent serious voluntary exposure. Careful precautions are used in its manufacture, storage and use in this country. The following 2 case reports indicate, however, that complications may arise even when such precautions are used:

REPORT OF CASES

CASE 1.—History.—R. L. E., a youth aged 17, complained of dizziness and of numbness and stiffness of the feet and legs. He had worked as a "canner" of methyl bromide for six months before onset of his present symptoms. The gas was liquefied at -22°F . (-30°C .) and put into cans. Scattered gas was removed by a suction flow. It was stated that he had worked longer as a canner than any other employee and had lost 20 pounds (9 Kg.) during this time. He gave a history of having received numerous methyl bromide blisters on his hands. In November 1943 he began to notice mild vertigo and unsteadiness of vision (oscillopsia), which were more or less constant but not severe enough to incapacitate him for his work. About ten days later he noticed numbness and tingling of the soles of the feet, which later ascended the legs as far as the groin. With the paresthesias he noted some stiffness and weakness of the lower extremities, with disability in walking and running. There were no difficulties with the use of the upper extremities. The vertigo disappeared after about three weeks, but the paresthesias and stiffness of the legs persisted. The patient was put to bed the latter part of November, about three weeks after the onset of the symptoms, because he had developed a tachycardia. This improved with rest and the weakness of the legs became less, although the paresthesias persisted.

Examination.—The patient was a slender young man of fair physical development. The temperature, pulse and respirations were normal, and blood pressure was 104/80. He was intelligent and cooperative. There was a slight swaying in his gait, and the Romberg sign was present. The pupils were moderately dilated but reacted normally. The extraocular movements and the optic fundi were normal. There was nystagmus on lateral gaze. The biceps and triceps reflexes were active and equal. There was no Hoffman's sign. There was a moderate amount of dysidiadokokinesia bilaterally, and there was slight intention tremor on the finger to nose test. The abdominal and cremasteric reflexes were active. The patellar and achilles reflexes were exaggerated. There were abortive ankle clonus and a positive Babinski sign bilaterally. There was mild ataxia on the heel-to-knee-to-toe test bilaterally. Vibratory sense was slightly diminished in the lower extremities. Position and cutaneous sensations were normal, and there was no astereognosis. Examination of the blood showed the hemoglobin to be 97 per cent, red blood cells 4,800,000 per cubic millimeter, white blood cells 17,250 per cubic millimeter, with 84 per cent polymorphonuclear cells, 9 per cent large lymphocytes and 7 per cent small lymphocytes. The platelets were normal in number. The white blood cells showed a moderate toxic granulation, but no abnormal cells were seen. The blood bromide determination was 13 mg. of sodium bromide per hundred cubic centimeters. The Kahn reaction on the blood was negative. Spinal puncture showed a pressure of 150 mm. of water without block. The Kahn reaction and the colloidal gold and mastic curves were entirely negative. There were no cells. The total protein was 22 mg. per hundred cubic centimeters.

Course.—The patient was treated symptomatically and was advised against returning to his previous employment. One month later he reported progressive improvement with gain in appetite and weight and disappearance of staggering and numbness. He still noted pronounced ease of fatigue.

CASE 2.—History.—I. S., a man aged 26, complained of weakness of the legs and difficulty in walking. He had been employed for several months in the distilling of methyl bromide. Three weeks before admission, after working for about four hours at his machine, he became weak and dizzy. He was taken to the first aid department, where he stayed all night, and he had some nausea and vomiting during the night. He returned to his work two days later and at this time again

became dizzy and weak and noticed unsteadiness and double vision. There was also numbness and tingling of the legs and arms, which was followed by extreme weakness; his gait became ataxic and he dropped objects from his hands without realizing it. The weakness of the arms disappeared within a few days, but the weakness of the legs persisted. The patient was forced to stop his work two weeks later because of difficulty in walking. He had noticed drowsiness, a decided loss of appetite and loss of 15 pounds (7 Kg.) in weight in one month. A few days after the development of the patient's symptoms a leak was said to have been discovered in the apparatus with which he was working.

Examination.—The patient was well developed and did not appear to be acutely ill. He responded slowly to questioning. Temperature, pulse and respirations were normal; blood pressure was 114/70. His gait was weak and unsteady, and he walked with a wide base, took short steps, and his feet slapped the floor in walking. He was unable to walk tandem. The Romberg sign was present. The pupils were moderately dilated. The extraocular movements and the optic fundi were normal. There was nystagmus on extremes of lateral gaze. The biceps and triceps reflexes were normal. There was slight incoordination and intention tremor in the upper extremities. The abdominal and cremasteric reflexes were normal. The patellar reflexes were exaggerated, but the achilles reflexes were diminished. Vibratory sense was diminished at the ankles. Position sense was normal. Cutaneous sensations were diminished in both lower extremities, with a stocking distribution extending to the knees. Deep pain sensation was present. There was no astereognosis. Laboratory tests showed a negative Kahn reaction on the blood. The skull roentgenogram was negative. Blood bromide determination was 9 mg. of sodium bromide per hundred cubic centimeters. Spinal puncture showed normal pressure without block; there were 3 cells per cubic millimeter; the Kahn, colloidal gold and mastic tests were negative, and the total protein was 48 mg. per hundred cubic centimeters. Urinalysis was normal. Blood count showed a hemoglobin of 90 per cent, red blood cells 4,700,000 per cubic millimeter and white blood cells 9,000 per cubic millimeter, with 63 per cent polymorphonuclear cells, 30 per cent lymphocytes, 5 per cent monocytes and 2 per cent eosinophils. A psychometric determination awarded the patient an intelligence quotient of 85, placing him in the low average group.

Course.—The patient's symptoms improved progressively during a two weeks period of hospitalization. His gait improved, and he complained less of the paresthesias and of the weakness. Two months later he still noted some weakness and paresthesias, however, with some residual blurring of vision. He had returned to his work two weeks after discharge from the hospital but had frequently lost time from work because of his symptoms.

CASE 3.—As this report goes to press, a third patient with nervous system manifestations resulting from methyl bromide intoxication has been observed. This man, aged 43, an assistant operator in the manufacture of methyl bromide since Nov. 7, 1943, noticed the onset of tinnitus about Jan. 15, 1944. This was followed by weakness and numbness of the legs, staggering gait, vertigo and headaches. A few days later he noted weakness of the left arm and leg, blurring of vision and lethargy. He was forced to stop his work on January 22. Beginning the middle of February he noted some improvement, although the drowsiness was followed by insomnia and he had had one attack of nausea and vomiting. When examined on May 5, 1944 he showed anisocoria, an ataxic gait, exaggerated tendon reflexes especially on the left, abortive ankle clonus, and diminished vibratory sensibility in the lower extremities.

SUMMARY

Methyl bromide is a toxic substance, and nervous system or other complications may arise from exposure to it. Recent allocation of methyl bromide by the War Production Board for use in the armed forces merits extreme care in its disposition and utilization. While it can be handled without injury if used intelligently, its toxic potentialities must be borne in mind, and its indiscriminate and careless use must be avoided.

PRODUCTION OF POTENT INACTIVATED VACCINES WITH ULTRAVIOLET IRRADIATION

III. AN ABBREVIATED PRELIMINARY REPORT ON A COMPLETELY INACTIVATED POLIOMYELITIS VACCINE (LANSING STRAIN VIRUS) IN MICE

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A new method and equipment for the preparation of potent vaccines completely inactivated by ultraviolet irradiation of continuously flowing thin (less than 1 mm.) films of turbid suspensions of bacteria and viruses for less than one second has been described.¹ We have reported² the preparation of highly antigenic, completely inactivated vaccines for rabies and St. Louis encephalitis viruses with this technic. The present paper is a preliminary report on the preparation and antigenic studies of a completely inactivated vaccine prepared from the mouse adapted Lansing strain of poliomyelitis virus which not only evokes the formation of specific neutralizing antibodies in immunized mice but also confers a high degree of protection against subsequent intracerebral inoculation. The complete details of this paper will be published elsewhere.

Although there are a few publications³ of the effectiveness of ultraviolet irradiation in destroying the poliomyelitis virus, to our knowledge no one has made antigenicity studies of irradiated poliomyelitis vaccines. It has been shown repeatedly that monkeys vaccinated with various completely inactivated poliomyelitis virus preparations develop little or no immunity, while active virus vaccines may stimulate immunity but are too dangerous for human use.⁴ Recently the development of both resistance to intracerebral inoculation and potent humoral antibodies against the Lansing strain in mice immunized with active virus has been reported,⁵ but no attempts were made to vaccinate mice or cotton rats with completely inactivated preparations of this strain.

From the Samuel Deutsch Serum Center of Michael Reese Hospital and the Michael Reese Research Foundation.

The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and the Michael Reese Research Foundation. This work is a parallel development with other research in poliomyelitis supported by the National Foundation for Infantile Paralysis at Michael Reese Hospital. Supported in part by Parke, Davis & Co.

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EXPERIMENTAL

Swiss mice of a single strain, 4 to 5 weeks of age, were used. Virus suspensions were prepared from pooled brains and cords of mice paralyzed two to five days after intracerebral inoculation of the mouse adapted Lansing strain of poliomyelitis virus⁶ and stored at -76 C. Four per cent uncentrifuged, pooled poliomyelitis virus suspensions were completely inactivated by our technic of ultraviolet irradiation in an exposure time of 0.5 to 0.66 second. Four separate lots of completely inactivated, irradiated vaccines were prepared and tested for immunizing potency. Each lot of irradiated vaccine was shown to be completely inactivated by (1) repeated intracerebral inoculations in both mice and monkeys,⁷ (2) adjusting the vaccine suspension to

TABLE 1.—Resistance of Mice Immunized with Vaccines Completely Inactivated by Ultraviolet Irradiation to Intracerebral Inoculation of Poliomyelitis Virus (Lansing Strain)

Vaccine Lot Number and Unvaccinated Controls *	Time of Irradiation in Seconds	No. of Intraperitoneal Injections (0.5 Cc. Each)	Time Between Initial and Challenge Dose	Dilutions of Virus Inoculated Intracerebrally in 0.03 Cc. Amount†			
				1:10	1:100	1:1,000	1:2,000
1.....	0.5	3	3 weeks	2/12	2/12	0/10	
Controls ..	..	..	.....	12/12	12/12	8/12	0/12
2.....	0.66	3	3 weeks	3/12	1/10		
Controls ..	..	..	.....	12/12	10/10	8/10	7/10
3.....	0.65	3	3 weeks	7/35	0/10		
Controls ..	..	..	.....	37/33	10/10	9/10	8/10
4.....	0.66	3	3 weeks	2/13	2/15		
Controls ..	..	..	.....	13/17	15/15	10/10	8/10

* Each lot number designates a separate preparation

† Numerator = number of mice which developed poliomyelitis and died. Denominator = number of mice inoculated

TABLE 2.—Titration of Neutralizing Antibodies in Pooled Serums of Mice Vaccinated with Poliomyelitis Vaccines Completely Inactivated by Ultraviolet Irradiation

Serum *	Dilutions of Serum with 10 per Cent Virus Suspension†						
	1:1	1:5	1:10	1:20	1:40	1:80	1:160
2x vaccinated (lot 2)	0/8	0/8	1/8	4/8	7/8	8/8	8/8
3x vaccinated (lot 4)	0/8	0/8	2/8	5/8	8/8	8/8	8/8
Normal unvaccinated	8/8	8/8	8/8	8/8	8/8	8/8	8/8

* A number of vaccinated mice were bled just before the challenge inoculation of virus was given. Each serum tested was obtained from the pooled blood of 10 to 12 mice.

† Numerator = number of mice which developed poliomyelitis and died. Denominator = number of mice inoculated

pH 4.0 before inoculation,⁸ (3) serial animal passage and (4) histopathologic studies of sections of the brain and cord of random safety test mice and monkeys. Safety test mice were observed for at least 120 days.

Four different groups of mice were vaccinated intraperitoneally with three 0.5 cc. injections of undiluted irradiated vaccine given at weekly interval. The challenge dose of homologous virus was given intracerebrally to the vaccinated mice and also to the unvaccinated controls one week after the last dose of vaccine. The results obtained are presented in table 1.

6. Obtained from Dr. Charles Armstrong of the National Institute of Health, Bethesda, Md.

7. Shaughnessy, H. J.; Harrison, P. H., and Levinson, S. O. The Resistance of the Virus of Poliomyelitis to Freezing. *J. Biol. Chem.* 130: 1-14 (March) 1939. Levinson, S. Accelerated Infection in Poliomyelitis. *Science* 74: 520-521 (Nov. 23) 1941.

8. Harrison, W. M., and Levinson, S. O. Neutralizing Activity of Poliomyelitis Virus. Effect of pH on the Activity of the Virus. *Proc. Soc. Exper. Biol. & Med.* 1942: 22-23, 1943.

The presence of neutralizing antibodies against the Lansing strain of poliomyelitis virus in undiluted, pooled sera obtained from selected vaccinated mice was demonstrated as early as one week after a single dose of vaccine. One week after the second and third doses of vaccine the antibody titer had increased at least tenfold. The neutralization test employed was a slight modification of the technic described by Haas and Armstrong.⁹ At least 8 mice were inoculated with each serum-virus mixture, and positive and negative controls were included in every test. Table 2 shows the results of titrations of two positive sera in which serial dilutions of serum in buffered saline (p_H 7.4) were mixed with an equal volume of 10 per cent virus suspension.

Additional experiments which have been completed show that the irradiated poliomyelitis vaccine can be stored as long as four and a half months at 3 C. without significant loss of immunogenic potency. A rhesus monkey injected subcutaneously with three doses of irradiated vaccine (0.5, 1 and 1 cc. at weekly intervals) developed neutralizing antibodies one week after the second and third doses of vaccine. No antibodies were detected in serum drawn before vaccination or one week after the first injection.

SUMMARY AND CONCLUSIONS

1. Several separate lots of completely inactivated poliomyelitis vaccine (Lansing strain) were prepared by means of a new technic of ultraviolet irradiation. The virus was consistently inactivated in less than one second exposure to the source of irradiation.

2. The irradiated poliomyelitis vaccines were proved to be completely inactivated by critical safety tests in mice and monkeys.

3. Mice immunized with three doses of the irradiated poliomyelitis vaccine developed significant resistance to intracerebral inoculation and also specific serum neutralizing antibodies.

4. The irradiated poliomyelitis vaccine exhibited no significant loss of potency after four and a half months storage at 3 C.

9. Haas, V. H., and Armstrong, C.: Immunity to the Lansing Strain of Poliomyelitis as Revealed by the Protection Test in White Mice, *Pub. Health Rep.* 24: 1061-1068 (June 14) 1940.

Babylonian-Assyrian Medicine.—The existence of a well established medical profession in that broad expanse between the Euphrates and the Tigris rivers was revealed by the discovery of the so-called Code Hammurapi. According to most Assyriologists, Hammurapi was the sixth king of the first dynasty of Babylonia, reigning for fifty-five years, around 725 B. C. He was a stern but just ruler and a great soldier; he codified the existing customs and laws regulating the social and commercial conduct of his subjects, mainly with the purpose of defending the weak against the oppression of the strong. Among the two hundred and eighty-two separate regulations, nine refer to the practice of surgery—to the medico-legal phase of medicine. The fees were fixed according to the social strata of the patients, and rather severe penalties were meted out in cases of operative failure. Singularly enough, no references are found pertaining to nonsurgical diseases; probably that phase of medicine was in the hands of priests, and cures depended on incantations and prayers more than on drugs. Yet we must not lose sight of the fact that they had a not inconsiderable knowledge of chemistry, which may have been a factor in the preparation of drugs.—Ricci, James C.: *The Genealogy of Gynaecology*, Philadelphia, Blakiston Company, 1943.

Clinical Notes, Suggestions and New Instruments

INTRAVENTRICULAR PENICILLIN IN THE TREATMENT OF STAPHYLOCOCCIC MENINGITIS

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Several reports have appeared in the literature of the use of penicillin intrathecally, with good results. Rammelkamp and Keefer¹ treated 6 patients with intrathecal penicillin, including 2 with brain abscess and meningitis and 2 with meningitis. In 2 of the patients who died, penicillin was demonstrated in the cerebrospinal fluid removed from the third ventricle and from the cisterna magna. They suggested an initial dose of not more than 10,000 Florey units, followed by subsequent doses of 5,000 units every twenty to twenty-four hours. Absorption and excretion were more rapid in patients with meningitis than in those without meningitis. There were no reactions to the intrathecal penicillin except as evidenced by an increase in the number of leukocytes in the spinal fluid and an occasional headache.

A discussion arising from the death of a patient with streptococcic meningitis who had been treated with penicillin intrathecally produced the suggestion by Lieut. Col. R. G. Spurling of the neurosurgical service that the drug might not be reaching

Dosage and Cell Counts During Treatment

Date	Intrathecal Penicillin Units	Ventricular Penicillin Units	Spinal fluid Cell Counts	Temperature, F.	White Count
6/26	.....	.....	23,750	105	9,200
6/28	17,500	.....	6,480	103.8	8,100
6/29	15,000	.....	4,400	104.8	7,600
6/30	10,000	.....	2,200	101.2	.....
7/1	10,000	.....	2,980	100.4	.....
7/2	10,000	.....	5,280	100.4	7,600
7/3	10,000	.....	2,475	101.4	7,600
7/4	10,000	.....	2,080	101	.....
7/5	7,500	7,500	.....	102	5,200
7/6	5,000	.....	.....	101	.....
7/7	3,000	6,000	675	103	7,300
7/8	.....	.....	170	101	12,200
7/10	.....	.....	(ventricular) 345	100.4	9,500

the infection within the ventricles in sufficient concentration. In the case to be reported, after the clinical course had reached a standstill under intrathecal administration, it was decided to inject the chemotherapeutic agent directly into the ventricles to insure maximum levels within the brain.

A brief survey of the literature reveals no reported cases of this method of penicillin administration. It is thought noteworthy that in this case the intraventricular injection of the drug was effective and produced no apparent harmful reaction. It should be emphasized that this method of treatment is recommended only for those patients who have failed to respond to intraspinal penicillin therapy.

REPORT OF CASE

A sergeant aged 25 had been well and free from symptoms until the evening of June 12, 1943. At that time, while riding a bicycle along a highway near Minersville, Pa., he was struck by an automobile and rendered unconscious.

He was taken to the Pottsville Hospital, where physical examination is said to have revealed an irregular swelling on the right forehead, pupils which were equal, dilated and reacted poorly to light, and an abrasion on the left shoulder. The temperature was 99.4 F. Physical and neurologic examination except for moderately deep unconsciousness were otherwise negative.

Blood studies were within normal limits. X-ray films of the skull showed a linear fracture in the right frontal bone starting 1 cm. from the midline and extending into the right frontal accessory nasal sinus.

From the Neurosurgical Section and the Laboratory Section, Walter Reed General Hospital, Washington, D. C.

1. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Toxicity of Penicillin Administered by Intrathecal Injection, *Am. J. M. Sc.* 205: 342 (March) 1943.

Throughout the following two weeks the patient remained semiconscious, irrational, restless and incontinent of urine. He was said to have recognized his wife on one occasion. Temperatures varied from normal to 102.4 F. (axillary), pulse rates from 72 to 102. Lumbar puncture was said to have revealed blood tinged spinal fluid under a pressure of 330 cm. of water on June 23. The neurologic findings did not change materially from day to day. Treatment included only routine nursing care, 50 per cent dextrose twice daily and sulfathiazole 1 Gm. every four hours for two days. He was transferred to Walter Reed General Hospital on June 26.

On arrival at this hospital he was unconscious, restless and uncooperative, and remained so throughout the following six days. The temperature on arrival was 103 F. (rectal) and soon rose to 105, the pulse rate 128, respiratory rate 24. Neurologic examination was negative except for moderate rigidity of the neck, a positive Kernig sign, absent abdominal reflexes and positive Babinski and Gordon signs on the right.

A spinal puncture yielded cloudy fluid with an initial pressure of 180 cm. of water. Dynamics were normal. The fluid contained 23,750 leukocytes and 90 per cent polymorphonuclears. Cultures showed coagulase positive *Staphylococcus aureus*. The

holes in the posterior parietal area were made, but no collection of epidural fluid or pus was found. A needle was then passed into the right ventricle and 8 cc. of slightly turbid, colorless fluid withdrawn, which showed only minimal bacteriostatic activity in spite of the fact that 7,500 units of penicillin had been introduced by lumbar puncture two hours earlier. Seven thousand five hundred Florey units of penicillin was then dissolved in 5 cc. of saline solution and introduced into the ventricle. The galea and skin were closed. There was no immediate reaction to the procedure. On the following day, July 6, the temperature had fallen to 101 F. and the pulse rate to 80. On July 7 the temperature rose again to 103 F., the pulse rate to 104. Spinal tap resulted in fluid which was much clearer and contained only 675 leukocytes, with 65 per cent polymorphonuclears. The culture of this fluid was sterile. The right ventricular fluid removed contained only 170 leukocytes, with 59 per cent polymorphonuclears. The temperature on the following day was 101 F. but thereafter was never higher than 100.4 F.

Because of the shortage of the therapeutic agent, penicillin was stopped on July 7 and sodium sulfadiazine begun with an initial intravenous dose of 5 Gm., followed by 2.5 Gm. every

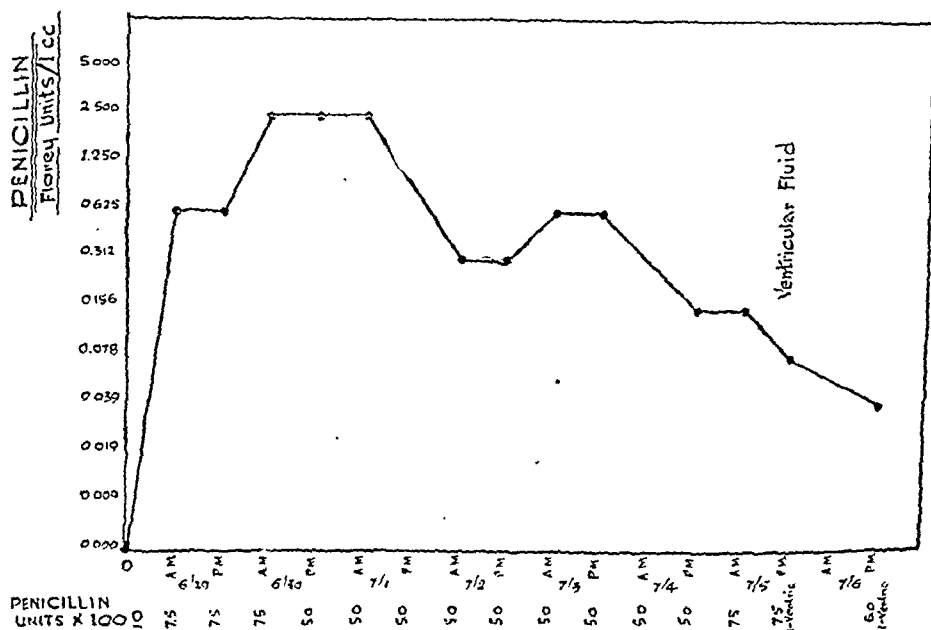
twelve hours until July 11. From July 11 to July 18, 4 Gm. of sulfadiazine was given daily by mouth, and on July 18 all medication was stopped. After the withdrawal of penicillin and the change to sulfadiazine the spinal fluid cell count rose to 345 cells on July 10 and 665 cells on July 12 but then gradually fell to a count of 17 cells with 4 per cent polymorphonuclears on July 26. On that day, through a right frontal burr hole exploration, a small, old, subdural hygroma containing about 14 cc. of clear, yellow, sterile fluid was evacuated.

During this course of treatment the patient's mental state gradually improved to a level at which he was able to recognize friends, eat with help, read large type and carry on a very simple conversation. At last report he was able to play rummy, read the comic strips and go to the bathroom with help. The meningitis has been

cured. After July 14 his temperature remained normal and neurologic examination showed no abnormal findings. There were no pronounced changes in the urine or blood counts during treatment.

SUMMARY AND CONCLUSIONS

This case of staphylococcal meningitis treated with intrathecal and intraventricular penicillin is presented chiefly to show that intraventricular use of penicillin as an adjunct to the intrathecal route of administration is possible without untoward reactions and with good effect. The fact that there was evidence of only minimal passage of penicillin from the spinal canal into the ventricles in two hours reemphasizes the fact that the normal flow of cerebrospinal fluid may hinder the free passage of therapeutic agents from the spinal canal into the ventricular system. This is especially true in meningitis when arachnoid adhesions and exudate may partially obstruct the normal spinal fluid pathways. The introduction of penicillin directly into the ventricles overcomes this handicap and insures a more uniform distribution of the therapeutic agent throughout the cerebrospinal fluid system. The dosage used in this case was not large and in the light of future knowledge may prove to have been too small. The levels of penicillin in the spinal fluid during treatment are shown on the graphic chart. The introduction of a needle into the ventricle in the acute stage of meningitis should be performed with caution, and not until penicillin has been given intraspinally for several days.



Penicillin levels in the spinal fluid by Rammelkamp's method.

white blood cell count was 9,200, red blood cell count 4,000,000, hemoglobin 94 per cent, and nonprotein nitrogen 25 mg., blood sugar 101 mg. and chlorides 495 mg. per hundred cubic centimeters. The urine had a specific gravity of 1.011, no albumin, no sugar and a normal sediment. An electroencephalogram showed the dominant rhythm to be slow, but there was no evidence of focalization.

Treatment and Course.—On admission sodium sulfadiazine 5 Gm. was administered intravenously, followed by 2.5 Gm. every twelve hours for two days. On June 28, however, the temperature was still 103.8 F. (rectal) and the pulse rate 118. Spinal tap showed an initial pressure of 210 cm. of water with cloudy fluid containing 6,480 leukocytes, 90 per cent polymorphonuclears and a positive culture for *Staphylococcus aureus*. Consequently, intrathecal penicillin was begun, with an initial dose of 10,000 Florey units. This was followed by subsequent doses of 7,500 units intrathecally twice daily for three doses, then 5,000 units twice daily for five days. No untoward reactions were noted. The state of unconsciousness remained unchanged, but the temperature dropped to 101.4 F. and the pulse rate to 92. The number of leukocytes in the spinal fluid dropped to 2,200 on June 30 and the culture became sterile. However, the spinal fluid cell count fell only slightly beyond that point, and on July 5, after seven days of intrathecal penicillin, the temperature rose to 102 F. In view of the possibility of an epidural abscess of the brain, bilateral burr

COUNCIL ON PHARMACY AND CHEMISTRY

At periodic intervals the Council on Pharmacy and Chemistry will offer brief statements on the present status of therapeutic or prophylactic procedure in fields of current interest. This information will be selected for its special value to those engaged in general practice.

Austin E. Smith, M.D., Secretary.

PENICILLIN

EFFECTIVE IN

All *staphylococcic* infections with and without bacteremia:

Acute osteomyelitis
Carbuncles—soft tissue abscesses
Meningitis
Cavernous or lateral sinus thrombosis
Pneumonia—empyema
Carbuncle of kidney
Wound infections

All cases of *clostridial* infections:

Gas gangrene
Malignant edema

All *hemolytic streptococcic* infections with bacteremia and all serious local infections:

Cellulitis
Mastoiditis with intracranial complications, i. e. meningitis, sinus thrombosis, etc.
Pneumonia and empyema

Puerperal sepsis

Peritonitis

All *anaerobic streptococcic* infections:

Puerperal sepsis

All *pneumococcic* infections of

Meninges

Pleura

Endocardium

All cases of sulfonamide resistant pneumococcic pneumonia

All gonococcic infections complicated by

Arthritis

Ophthalmia

Endocarditis

Peritonitis

Epididymitis

Also all cases of sulfonamide resistant gonorrhea

All meningococcic infections not responding to the sulfonamides

NOT ESTABLISHED AS EFFECTIVE FOR

All gram-negative bacillary infections:

Typhoid—Paratyphoid
Dysentery
Escherichia coli
Haemophilus influenzae
Proteus vulgaris
Bacillus pyocyaneus
Brucella melitensis (undulant fever)
Tularemia
Friedländer's bacillus

Tuberculosis
Toxoplasmosis
Histoplasmosis

Acute rheumatic fever

Lupus erythematosus disseminatus

Infectious mononucleosis

Pemphigus

Hodgkin's disease

Acute and chronic leukemia

Ulcerative colitis

Coccidioidomycosis

Malaria

Poliomyelitis

Blastomycosis

Nonspecific iritis and uveitis

Moniliasis

ADMINISTRATION

Method of Preparing Penicillin for Treatment

Penicillin is supplied in ampuls of different sizes—25,000 units and 100,000 units each. As penicillin is extremely soluble, it may be dissolved in small amounts of sterile distilled, pyrogen-free water or in sterile isotonic solution of sodium chloride. When large unit sizes are being used in hospitals, the contents of the ampul should be dissolved in water or saline solution so that the final concentration is 5,000 units per cubic centimeter. This solution should be stored under aseptic precautions in the ice box and made up fresh every day. Solutions for local or parenteral use may be diluted further, depending on the concentration desired.

For intravenous injection

1. The dry powder may be dissolved in sterile isotonic solution of sodium chloride in concentrations of 1,000 to 5,000 units per cubic centimeter for direct injection through a syringe.

2. The dry powder may be dissolved in sterile saline or 5 per cent dextrose solution in lower dilution (25 to 50 units per cubic centimeter) for constant intravenous therapy.

For intramuscular injection

1. The total volume of individual injections should be small, i. e. 5,000 units per cubic centimeter of isotonic saline solution.

For topical application

1. The powdered form of the sodium salt is irritating to wound surfaces and should not be used.

2. Solutions in isotonic salt solution with a concentration of 250 units per cubic centimeter are satisfactory. For resistant or more intense infections this concentration may be increased, to 500 units per cubic centimeter.

DOSAGE

The dosage of penicillin will vary from one patient to another, depending on the type and severity of infection. Recovery has followed in many serious infections following 40,000 to 50,000 Oxford units a day; in others 100,000 to 120,000 or even more is necessary. The objective in every case is to bring the infection under control as quickly as possible. It is well to remember that penicillin is excreted rapidly in the urine, so that following a single injection it is often impossible to detect it

in the blood for a period longer than two to four hours. It is well, therefore, to use repeated intramuscular or intravenous injections every three or four hours or to administer it as a continuous infusion.

In the treatment of *meningitis*, *empyema* and *surface burns of limited extent*, penicillin should be injected directly into the subarachnoid space, into the pleural cavity, or applied locally in solution containing 250 units per cubic centimeter.

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SATURDAY, JULY 8, 1944

TIME NOW TO PROTEST AGAINST GOVERNMENT'S THREAT TO MEDICAL EDUCATION

In January 1944 it seemed that civilian and military needs for doctors would be met reasonably satisfactorily by the arrangement in which the 55 per cent of entering medical school classes would be provided by the Army Specialized Training Program, 25 per cent by the Navy V-12 Program and 20 per cent from civilian sources. In the past six months this program has rapidly deteriorated. Today medical educators and the medical profession of the country refuse to accept the responsibility for the acute shortage of medical care which will threaten this country within a few years if current regulations and policies persist. The responsibility must rest with the armed forces, the Selective Service System, the President and the Congress of the United States.

In February the Army drastically curtailed the Army Specialized Training Program and has since renegotiated its contracts with medical schools to provide 28 per cent of the 1945 entering classes instead of 55 per cent, increasing to 47 per cent the numbers medical schools must obtain from civilian sources.

In April the Selective Service System abolished all further occupational deferments of premedical and medical students not enrolled in medical schools by July 1, 1944. As a consequence, it was estimated that the entering classes of 1945 would be reduced 25 to 30 per cent.

The threat to medical care entailed in these policies was pointed out to General Hershey, the Secretaries of War and the Navy, the President and others, with the suggestions that the situation could be met by (a) reinstitution of the inactive reserves by the Army and Navy, which functioned well for a year, and/or (b) an

appropriate Selective Service adjustment, which was definitely a second best arrangement.

The Army and Navy rejected the first alternative as an evasion of the Selective Service law, and the Selective Service System rejected the alternate proposal because of the acute need of the Army for young men. The needs for medical care were considered to be subordinate to the needs of the fighting forces.

Alarmed at these developments, the House of Delegates of the American Medical Association, on the recommendation of the Council on Medical Education and Hospitals of the American Medical Association, passed the following resolution at its opening session, June 12:

WHEREAS, The present policy of the Army and the Selective Service System in preventing the enrolment of a sufficient number of qualified medical students will inevitably result in an overall shortage of qualified physicians, with imminent danger to the health and well being of our citizens; therefore be it

Resolved, That it is imperative that immediate action be taken by the President or the Congress of the United States to correct the current drastic regulations, which result in a restriction of the number of students qualified to enter the courses of medical instruction in approved medical schools.

This resolution was sent to the President, the Secretaries of War and the Navy, the Selective Service System and all members of the House and Senate Military Affairs committees.

The latest measure still further jeopardizing medical education and medical care was the passage of the Army appropriation bill by Congress June 21. This bill includes the following provision:

Provided That no appropriation contained in this Act shall be available for any expense incident to education of persons in medicine (including veterinary) or dentistry if any expense on account of this education in such subjects was not being defrayed out of appropriations for the military establishment for the fiscal year 1944 prior to June 7, 1944. . . .

This provision would seem to eliminate from 1946 entering medical classes the 28 per cent of places contracted for by the Army. Even if the Navy increases its quota from 25 per cent to 31 per cent, schools will be obliged to obtain 69 per cent of their students from women and physically disqualified males. Nothing even approaching this number of qualified civilian students is available. Classes will probably be half filled in the country at large.

Should an adjustment not be made to correct the present alarming situation, a tremendous reduction of graduates after the war will ensue. Although schools will continue the accelerated program, they will admit classes only once annually instead of every nine months.

This of itself will reduce the number of graduates from the present annual average of 7,000 to 5,000. If classes can be only half filled, this number will be reduced to 2,500 graduates per year. Since 3,300 to 3,500 physicians die each year, there will result an annual and cumulative deficit of 2,000 doctors a year.

Still further reductions in graduates and permanent damage to the "plant" of medical education will result from some schools being forced to close their doors because of drastically curtailed enrolments. An unknown number of war casualties among medical officers will also reduce the supply of physicians.

These reductions in medical graduates will occur in the face of new and increased demands for medical services, mainly from the civilian population, the standing army and navy, the Veterans Administration and the liberated countries of Europe.

Full support should be forthcoming from the medical profession for the Miller bill (H. R. 5128), with modifications, which reads:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 5 of the Selective Training and Service Act of 1940, as amended, is amended by inserting at the end thereof a new subsection reading as follows:

"(n) There shall be deferred from training and service under this Act in the land and naval forces of the United States, as necessary to the maintenance of the national health, safety, and interest, in each calendar year not less than six thousand medical students and not less than four thousand dental students. As used in this subsection the term 'medical or dental student' means (1) a person who is enrolled in, and who is pursuing a course of instruction prescribed for the degree of doctor of medicine at an accredited medical college; and a person who is enrolled in, and who is pursuing a course of instruction prescribed for the degree of doctor of dentistry at an accredited dental college; or (2) a person who is pursuing a regular course of instruction at an accredited college or university (satisfactory completion of which will make such person eligible for enrolment in an accredited medical or dental college) with the bona fide intention of entering an accredited medical or dental college and pursuing and completing the course of instruction prescribed for the degree of doctor of medicine or for the degree of doctor of dentistry."

Protests against the blind disregard for medical care in the future should be addressed to the Senate (Senator Robert R. Reynolds, Chairman) and House (Representative Andrew J. May, Chairman) Committees on Military Affairs, the Senate Committee on Education and Labor (Senator Elbert D. Thomas, Chairman) and the House Committee on Education (Representative Graham A. Barden, Chairman). Every state medical society, medical school and medical scientific society should express itself in no uncertain terms on these developments.

TONSILLECTOMY AND POLIOMYELITIS.

In the relationship between tonsillectomy and poliomyelitis two clinical facts seem to have been established, as emphasized in an editorial in *THE JOURNAL*:¹ (1) Acute poliomyelitis developed more often among recently tonsillectomized children, and (2) the increased incidence was due entirely to the excess of cases of the bulbar type. In his review of the available data Aycock² pointed out that the less common bulbar form predominated in the combined statistics over the spinal form in a ratio of about five to one in the cases occurring within thirty days following tonsillectomy. The operation of tonsillectomy and adenoidectomy, therefore, appears to bear in the thirty day group a causal relationship to acute poliomyelitis, especially the bulbar type of the disease.

A communication by Page³ in a recent issue of the *Archives of Otolaryngology* reports 1 case of poliomyelitis following 8,915 tonsillectomies. In his study, questionnaires were sent by the Manhattan Eye, Ear and Throat Hospital to 27,489 patients tonsillectomized during the years 1937 to 1941 inclusive. A total of 8,915 replies were received to the question "Have you had any illness since the tonsillectomy? What were the nature and the date of illnesses, if any?" The finding of only 1 case of acute poliomyelitis following 8,915 tonsillectomies assumes particular importance, since these were the years in which the disease was most prevalent. For 1941, when 404 cases of poliomyelitis with eight deaths were reported by the New York Department of Health, 7,500 cards were sent out and 3,500 replies were returned without illnesses reported. Stillerman and Fischer⁴ found in the epidemic of poliomyelitis in New York City that among 686 patients with poliomyelitis admitted to the Willard Parker Hospital in 1935 there were 10 in whom tonsillectomy and adenoidectomy had been performed during the month antedating their illness. In 8 of these patients symptoms of poliomyelitis were manifest within ten to twelve days after the operation. Six of the patients had the bulbar or encephalitic form of the illness. Inquiry by the same authors among 52 patients admitted to the same hospital in 1937 disclosed that 3 had been tonsillectomized within the month preceding the disease. Operation was performed on 2 of these fourteen days and on the third twenty-one days before the onset of the disease. All 3 had the bulbar type, and all of them died.

1. Tonsillectomy and Poliomyelitis, editorial, *J. A. M. A.* **118**: 980 (March 21) 1942.

2. Aycock, W. L.: Tonsillectomy and Poliomyelitis, *Medicine* **21**: 65 (Feb.) 1942.

3. Page, John Randolph: Tonsillectomy and Poliomyelitis: One Case of Poliomyelitis Following 8,915 Tonsillectomies, *Arch. Otolaryng.* **30**: 323 (April) 1944.

4. Stillerman, Maxwell, and Fischer, Alfred E.: Acute Bulbar Poliomyelitis Following Recent Tonsillectomy and Adenoidectomy, *Am. J. Dis. Child.* **56**: 778 (Oct.) 1938.

The discrepancy in the statistics of Page and those of Stillerman and Fischer and of Aycock and others is no doubt due to the method of investigation. The majority of the workers in this field would probably still support the warning sounded in the editorial of *THE JOURNAL*: Since tonsillectomy is almost always selective as to time, it would appear desirable that it be performed during the season which does not coincide with the prevalence of poliomyelitis.

Current Comment

ABNORMAL SECRETION OF THE PANCREAS AND OTHER GLANDS A SYSTEMIC DISEASE

According to Farber¹ and his associates obstructive conditions in the pancreas early in life are associated with meconium ileus in the neonatal period and later with nutritional disturbances, in which the celiac syndrome and serious respiratory disease predominate. Farber deals particularly with the pancreas, the respiratory system, the liver and the salivary glands of young children with pancreatic insufficiency. In the pancreas he found more or less complete atrophy of the exocrine parenchyma associated with and apparently due to the accumulation of inspissated secretion in the acini and in the variously dilated ducts. In what seemed to be the early stage of the process the acini and smaller ducts contained eosinophilic homogeneous masses that would cause obstruction to the outflow of pancreatic juice as suggested by Wolbach some years ago. In such cases the duodenal contents did not give evidence of the activity of pancreatic enzyme. In the patients with the symptoms and lesions of obstructive pancreatic achylia who lived more than a few months after birth, both the lungs nearly always showed effects of obstruction in the trachea, the bronchi and the bronchioles by thick, tenacious mucoid and mucopurulent material. The mucous glands of the trachea and bronchi were distended with material like that in the pancreatic acini and ducts. This was the case also in the salivary glands and the mucous glands of the esophagus, the duodenum, the gallbladder and the jejunum. The microscopic changes in the liver duplicated "in all important findings the lesions in the pancreas, even to the color and the appearance of the inspissated secretions." The pancreas may be only one of many glandular structures of which the secretions are subject to physical changes of as yet unknown nature that cause obstruction and dilatation of acini and ducts, with far reaching functional and anatomic consequences. "What has been called cystic fibrosis of the pancreas or pancreatic fibrosis is really a systemic disease with a variety of clinical appearances, the occurrence of which depends on when

the obstructive changes occur and which organs are affected." Better understanding of this disease calls for studies of the nature and causes of the alterations in the glandular secretions.

THE REPUBLICAN PLATFORM

Evidence of the extent to which the point of view of the medical profession is prevailing in the further development of medical service in the United States is apparent in those sections of the Republican platform adopted in Chicago last week which deal with this subject. Under the heading of Security the platform states:

Our goal is to prevent hardship and poverty in America. That goal is attainable by reason of the productive ability of free American labor, industry and agriculture, if supplemented by a system of social security on sound principles.

We pledge our support of the following:

1. Extension of the existing old age insurance and unemployment insurance systems to all employees not already covered.
2. The return of the public employment-office system to the states at the earliest possible time, financed as before Pearl Harbor.
3. A careful study of federal-state programs for maternal and child health, dependent children and assistance to the blind, with a view to strengthening these programs.
4. The continuation of these and other programs relating to health, and the stimulation by federal aid of state plans to make medical and hospital service available to those in need without disturbing doctor-patient relationship or socializing medicine.
5. The stimulation of state and local plans to provide decent low cost housing properly financed by the Federal Housing Administration, or otherwise, when such housing cannot be supplied or financed by private sources.

When the platform of the Democratic party becomes available, it also will be published in these columns.

CONTINUATION COURSES FOR PRACTICING PHYSICIANS

Elsewhere in this issue the Council on Medical Education and Hospitals lists the continuation courses available in all parts of the country to practicing physicians during the second half of 1944. These include courses in a wide variety of fields in clinical medicine and the basic sciences. The courses run for variable periods from one to several weeks. Some are concentrated full time courses and others are part time. This information is provided semiannually by the Council in response to a widespread demand which has persisted ever since the beginning of the war. A special effort at extensive coverage of available courses has been made in the current listing. Schools offering such courses will assist the Council by regularly providing information about them.

1. Farber, S.: Pancreatic Function and Disease in Early Life: V. Pathologic Changes Associated with Pancreatic Insufficiency in Early Life, *Arch. Path.*, to be published.

MEDICINE AND THE WAR

ARMY

ARMY PROVIDES MEDICAL KITS FOR PRISONERS HELD BY JAPANESE

The Army Medical Department has developed special medical supplies for shipment to the Far East in an effort to provide the best possible care for American prisoners under control of the Japanese. The specially packed supplies have been designed for distribution by the International Red Cross, and packing cases will be labeled in English and in Japanese. The new plan for making supplies available to American and Allied prisoners of the Japanese was developed by a committee of officers in the Office of the Surgeon General. Besides drugs, the shipments contain dressings, simple types of surgical and dental instruments, sterilizing equipment, insecticides and water purifiers. The shipments are prepared in three types of units: a 100 man unit containing five separate packages, a hospital unit and a bulk supplies unit. Ten 100 man units, plus the hospital and bulk supplies unit, contain supplies believed to be sufficient for the needs of 1,000 men for three months. In order to facilitate handling and make for easy recognition by non-English speaking labor the special plywood, waterproofed cases, each of which bears a large red cross and is addressed to the International Red Cross delegate, are painted in special colors according to the type of unit. The American Red Cross has requisitioned a number of units and has informed the Medical Department that it is hopeful that permission for distribution will be granted by the Japanese government.

Approximately 126 different drugs are provided, and each individual package of the 100 man unit contains a booklet with precise instructions, couched in simple, nontechnical terms, for use of the medicines. The 100 man unit contains those drugs which can be best used by laymen, while the hospital and bulk supplies units are intended for installations where professional services may be available. The medicines selected are those most useful in treating diseases known to be prevalent in the Far East and for ailments likely to beset persons living under prison camp conditions. Some of the diseases for which one or more medicines are prescribed, together with instructions for their use, are anemia, fevers, beriberi, blood poisoning, diarrhea, dysentery, skin infections, scurvy, pellagra, pneumonia, meningitis, ulcers and rickets.

As a result of the new supply plan, all shipments of British, Canadian and American medical supplies to prisoners of the Japanese in the future will be standardized and may be used interchangeably.

MOBILE X-RAY UNITS FOR INVASION

After several months of experimentation the European theater of operations chief surgeon's office has announced that mobile x-ray units will follow American troops onto the continent. Lieut. Col. Kenneth D. A. Allen of Denver, who conceived the idea in 1943 and followed it through successfully, stated that the primary purpose of the mobile units, as in all medical corps work, is to keep men in the fighting front by prompt, accurate diagnosis and by location of foreign bodies and to save lives. Hospitals in the field are unable to carry enough x-ray equipment to handle peak loads of patients, so mobile units will be rushed to them when needed. They may also be sent to clearing stations where no x-ray equipment is available. The personnel consists of one medical officer, a specialist in x-ray work and three enlisted men. Two blacked out tents attached to a tarpaulin covering the back of the truck serve as patients' waiting rooms and picture taking rooms. The back end of the truck is used for developing and drying x-ray films. Generators furnish power for drying film, for control of water temperature, for lighting and for powering the x-ray machine. Capt. Charles D. Rancourt of Albany, N. Y., who assisted Colonel Allen in the construction of the

unit, has been demonstrating the original unit before hundreds of medical corpsmen. Colonel Allen, senior consultant in radiology to the theater chief surgeon, has been in the Army since May 1942. He taught in the x-ray school at Fitzsimons General Hospital in Denver until he went to England in January 1943.

TYPHUS NO LONGER IMPERILS U. S. SOLDIERS

Brig. Gen. Leon A. Fox, field director of the U. S. Typhus Commission, recently stated that "typhus has been removed from the list of diseases fatal to the American soldier." General Fox was recently credited with having saved Naples last January from what might have been one of the worst typhus plagues in history and with having stopped the epidemic in record time. General Fox attributes this accomplishment to the Army's DDT powder and to the complete cooperation given to him by the commander of that area. In one day during the typhus epidemic in Naples General Fox's typhus team treated 73,000 people with DDT powder. Having arrived in Naples when the epidemic was just getting under way with the civilian population (December 20) General Fox went to work with his crew and by February 1, at a time when ordinarily there would be 500 cases a day reported, there were only 5 to 6 a day, and the epidemic was over. Although vaccinated against typhus, each soldier carries a small can of DDT powder.

WAC NEEDS ADDITIONAL TRAINED MEDICAL TECHNICIANS

The Women's Army Corps needs additional trained medical technicians. Physically qualified young women with high school education are urged to make application for enlistment in the WAC service with the medical department. Major Gen. Norman T. Kirk, Surgeon General of the Army, recently sent out an appeal for women volunteers in hospital work. The Army offers training to competent young women enlisted in the Women's Army Corps in the field of medical laboratory, dental, x-ray and other technical subjects.

STATE HOSPITAL LEASED TO ARMY

The new Edgewood State Hospital at Deer Park, L. I., has been turned over to the War Department to be used for hospital purposes. Under the terms the War Department will reimburse the state for actual expenses incurred at the institution, pay for depreciation on buildings and equipment and restore the hospital to its present state at the end of Army occupancy. The hospital is nearing completion and will accommodate 2,300 beds.

FLIGHT SURGEONS' ASSISTANTS

A class of forty-eight flight surgeons' assistants completed the six weeks course in aviation medicine at the School of Aviation Medicine, Randolph Field, Texas, June 9. These men are trained as specialists in assisting flight surgeons in the selection, care and maintenance of the flier. Brig. Gen. Eugen G. Reinartz, U. S. Army, is commandant of the school.

PROMOTIONS IN THE ARMY MEDICAL DEPARTMENT

The following promotions to the rank of brigadier general (temporary) were recently announced by the War Department:

Col. George B. Foster Jr., Salem, Mass.
Col. Henry C. Dooling, Clayton, N. J.
Col. Ralph G. DeVoe, Seattle.

ARMY AWARDS AND COMMENDATIONS

Major Daniel H. Maunz

The Soldier's Medal was recently awarded to Major Daniel H. Maunz, formerly of Bradford, Pa. The citation accompanying the award read "On receipt of information at an army air forces installation at Presque Isle, Maine, that a civilian cook with a detachment was seriously ill with acute appendicitis at River Clyde, Northwest Territory, Canada, and that no doctor was available, he tendered his services in a professional capacity. Since it was impossible to land a plane safely in the vicinity of River Clyde, he volunteered to make a parachute jump, although he had no previous experience, in order to reach his patient. On Nov. 18, 1943 the rescue plane reached River Clyde. He exited at 1,200 feet, landed successfully and performed an operation which undoubtedly saved the patient's life." Dr. Maunz graduated from the University of Buffalo School of Medicine in 1931 and entered the service Oct. 5, 1942.

Colonel Robert K. Simpson

The War Department recently announced the award of the Legion of Merit to Col. Robert K. Simpson, who "performed outstanding services from April 1941 to September 1943. As surgeon of the AAF Gulf Coast Training Center and later of the AAF Central Flying Training Command, he procured more than 300 eminent physicians and surgeons for commission in the Army. He revised hospital plans in keeping with climatic conditions, designed infirmaries and established an itinerant dental and veterinary service for civil contract schools. He organized and established schools for medical and postgraduate specialized training. He established air ambulance service for Matagorda Island and Peninsula, and recreation and convalescence areas. At the same time he provided medical service for indigent dependents of military personnel and a well functioning consultation service for smaller outlying stations. He devised an efficient hand phorometer that can be packed in the flight surgeon's physical examining set. All of his efforts contributed materially to the efficiency and orderly expansion of the Air Forces." Dr. Simpson graduated from the University of Texas Medical Branch, Galveston, in 1916.

MISCELLANEOUS

ABOLITION ON CIVILIAN DEFENSE
REGIONAL OFFICES

Administrative Order No. 38, recently published by the Office of Civilian Defense, Washington, D. C., abolishes all civilian defense regions excepting the Washington region, as provided for in Administrative Order No. 33, dated Feb. 25, 1943, as subsequently revised and amended, and all powers and duties that have been delegated by the director of civilian defense to the regional directors are rescinded. Regional offices of civilian defense and regional civilian defense boards are hereby disestablished. Supplies, equipment, records and personnel problems arising from such disestablishment shall be met on the basis of specific instructions to each regional director. The functions and services heretofore performed by regional offices under their delegated powers and duties shall be performed hereafter by the Washington office or by such other methods as the director shall determine. The order is effective as of July 1, 1944.

MEDICAL AND SURGICAL RELIEF
COMMITTEE OF AMERICA

A donation of 100,000 atabrine tablets, valued at \$1,500, was recently made by the Medical and Surgical Relief Committee of America (420 Lexington Avenue, New York 17) to the Friends Ambulance Unit in Calcutta to alleviate the suffering of malaria stricken victims among the civilian and military population in India. The committee also sent to India during the last month, in conjunction with the American Friends Service Committee, \$5,100 worth of drugs—sulfapyridine, sulfaguanidine and atabrine tablets.

COLE LABORATORIES AWARDED
ARMY-NAVY E PENNANT

The Cole Laboratories, Long Island City, N. Y. (of which Retort Pharmaceutical Company is a division) have received the Army-Navy E Award. The Cole Laboratories operate three plants, where continuous laboratory control is maintained to insure products being manufactured according to specifications.

AWARDED ARMY-NAVY E

The Wilnot Castle Company, manufacturers of sterilizing equipment, has been awarded the Army-Navy E for achievement in war production. The presentation was made Thursday, June 22. The ceremonies were held in Cutler Union on the University of Rochester Campus.

PUBLIC HEALTH UNDER HITLER

Nya Dagligt Allehanda for March 11, 1944 (Germany) STB reports: Certain German universities have introduced a numerus clausus for medical students owing to the unusually large number of enrolments. One newspaper interviewed the head of the medical school at Heidelberg and asked him whether medicine is now a fashionable subject. The dean demurred and said that the matter will gradually be regulated but that there is still a shortage of doctors. The German authorities, however, distrust the sudden enthusiasm for medicine among women students and decided to investigate the matter at Heidelberg. Every woman student was forced to produce papers proving that she did not suddenly decide to become a doctor but planned it during her attendance at school. Out of 200 students 170 were able to produce evidence and others were able to plead "extenuating circumstances." Investigations were easier with regard to the male students since the majority were in uniform and belonged to a student company sent home for studies. But only those who had previously enrolled with the faculty of medicine may be sent to the university from the front. Konjunkturmässige, a new German expression, therefore, have little chance of being included in these companies. Those who do not attend to their studies properly are immediately taken over by the labor organizations.

The March 13, 1944 issue of *Le Journal* (France) states that the number of cases of scabies treated in Saint-Louis Hospital in Paris alone varied from 8,005 in 1939 to 93,559 in 1943. Sometimes over 600 patients are treated daily. The old unpleasant method of treatment with soft soap baths plus helmerich ointment has now been given up for the new "120" treatment, namely the painting of the whole body twice within fifteen minutes with liquid derivative of benzoate of benzoyl.

The Vichy Home Service for March 3, 1944 (France) reports that in 1943 the doctors made a great effort to relieve those colleagues who since the Armistice have been providing the health service in the prisoners' camps; 470 serving military doctors have replaced 84 serving doctors and 382 reserve doctors in the stalags and oflags. Another 112 doctors have joined them; 29 of them are volunteers and 83 were sent by the State Secretariat for Health.

A German from the town of West Sternberg has been sentenced to death by a special court at Frankfurt for performing nine abortions, the Nazi DNB agency reported recently in a wireless dispatch to the German domestic press. The dispatch, reported by United States government monitors, said that the German had been sentenced under a new provision in the Nazi penal code.

ORGANIZATION SECTION

PROCEEDINGS OF THE CHICAGO SESSION

MINUTES OF THE NINETY-FOURTH ANNUAL SESSION OF THE AMERICAN
MEDICAL ASSOCIATION, HELD IN CHICAGO, JUNE 12-16, 1944

MINUTES OF THE SECTIONS

SECTION ON PRACTICE OF MEDICINE

WEDNESDAY, JUNE 14—MORNING

The meeting was called to order at 9:05 by Dr. Roy W. Scott, Cleveland, in the absence of Dr. Burrell O. Raulston, Los Angeles, the chairman of the section.

Lieut. Col. Thomas H. Sternberg and Col. Thomas B. Turner, M. C., A. U. S., presented a paper on "The Treatment of Sulfonamide Resistant Gonorrhea with Penicillin Sodium." Discussed by Lieut. Col. Irving S. Wright, M. C., A. U. S.; Dr. John F. Mahoney, U. S. P. H. S.; Lieut. Col. Thomas H. Sternberg, M. C., A. U. S.; Dr. Alfred Cohn, New York, and Col. Thomas B. Turner, M. C., A. U. S.

Dr. Frank N. Allan, Boston, read a paper on "The Clinical Management of Weakness and Fatigue." Discussed by Drs. Walter C. Alvarez, Rochester, Minn.; Benjamin F. Sieve, Boston; Walter Freeman, Washington, D. C., and Frank N. Allan, Boston.

Dr. Louis Hamman, Baltimore, read the Frank Billings Lecture, on "Mediastinal Emphysema."

Drs. Hobart A. Reimann, Alison H. Price and John H. Hodges, Philadelphia, presented a paper on "Epidemic Diarrhea, Nausea and Vomiting of Unknown Cause." Discussed by Drs. H. J. Shaughnessy, Chicago; Ruth E. Tayler, Chicago; J. A. Garcia, Corpus Christi, Texas; D. J. Sandweiss, Detroit, and Hobart A. Reimann, Philadelphia.

Dr. Howard F. Root, Boston, read a paper on "Treatment of Diabetic Coma." Discussed by Drs. Edward S. Dillon, Philadelphia; Rollin T. Woodyatt, Chicago; Samuel Soskin, Chicago; Fred M. Allen, New York, and Howard F. Root, Boston.

THURSDAY, JUNE 15—MORNING

The following officers were elected: chairman, Dr. W. D. Stroud, Philadelphia; vice chairman, Dr. W. O. Thompson, Chicago; secretary, Dr. Cecil J. Watson, Minneapolis; delegate, Dr. F. M. Smith, Iowa City; alternate, Dr. Charles T. Stone, Galveston, Texas; executive committee: Dr. Roy W. Scott, Cleveland; Dr. Burrell O. Raulston, Los Angeles, and Dr. W. D. Stroud, Philadelphia; member of the American Board of Internal Medicine, Dr. B. O. Raulston, Los Angeles.

Col. Leonard G. Rowntree, M. C., A. U. S., read a paper on "The Health Needs of the Nation as Reflected by the Examination of Thirteen Million Registrants." Discussed by Dr. Raymond W. Waggoner, Ann Arbor, Mich.; Gen. George Lull, M. C., A. U. S., and Drs. R. L. Sensenich, South Bend, Ind.; Walter Freeman, Washington, D. C., and Herbert F. Robb, Belleville, Mich.

Dr. Robert L. Levy, New York, Brig. Gen. Charles C. Hillman, U. S. Army, and Drs. William D. Stroud, Philadelphia, and Paul D. White, Boston, presented a paper on "Transient Hypertension: Observations Based on Analysis of the Medical Records of 22,741 Officers of the United States Army."

Dr. Reginald H. Smithwick, Boston, read a paper on "The Results of Radical Sympathectomy in Hypertension."

Dr. Walter Kempner, Durham, N. C., read a paper on "Treatment of Kidney Disease and Hypertensive Vascular Disease with Rice Diet."

These three papers were discussed by Drs. E. A. Hines Jr., Rochester, Minn.; Geza de Takats, Chicago; Roy W. Scott, Cleveland; I. H. Page, Indianapolis; Frederick M. Hanes, Durham, N. C.; N. S. Davis III, Chicago; William S. Collens, Brooklyn; Walter Kempner, Durham, N. C.; Robert L. Levy, New York, and Reginald H. Smithwick, Boston.

Lieut. Col. Harry M. Kirschbaum, M. C., A. U. S., read a paper on "Heart Sounds: Recording of Effects of Anoxia."

FRIDAY, JUNE 16—MORNING

A joint meeting was held with the Section on Experimental Medicine and Therapeutics.

Col. W. Paul Holbrook, M. C., A. U. S., read a paper on "Acute Rheumatic Fever in the Army Air Forces."

Comdr. Alvin F. Coburn (MC), U.S.N.R., read a paper on "The Application of Sulfadiazine Prophylaxis in the Prevention of Bacterial Infections of the Respiratory Tract."

These two papers were discussed by Dr. T. Duckett Jones, Boston; Capt. Richard G. Hodges, M. C., A. U. S.; Col. W. Paul Holbrook, M. C., A. U. S., and Comdr. Alvin F. Coburn (MC), U.S.N.R.

Col. Julien E. Benjamin, M. C., A. U. S., and Major Ralph C. Hoyt, M. C., A. U. S., presented a paper on "Postvaccinal (Yellow Fever) Hepatitis: Convalescent Stage."

Dr. John R. Paul, New Haven, Conn., and Capt. W. P. Havens Jr., M. C., A. U. S., presented a paper on "Infectious Hepatitis in the Mediterranean Area."

These two papers were discussed by Dr. Joseph Stokes Jr., Philadelphia; Major Joseph Bank, El Paso, Texas; Col. Julien E. Benjamin, M. C., A. U. S., and Dr. John R. Paul, New Haven, Conn.

The following papers were read in a symposium on "Vitamins, Amino Acids and Enzymes," followed by a panel discussion, of which Morris Fishbein, Chicago, was Moderator:

Dr. William M. Govier, Winston-Salem, N. C.: "The Rationale for the Use of Vitamins in the Therapy of Shock and Anoxia."

Dr. Elmer L. Sevringhaus, Madison, Wis.: "Adult Needs of Vitamins A and C."

Dr. A. J. Carlson, Chicago: "The Dilemma of Subclinical Vitamin Deficiencies."

Dr. Tom D. Spies, Birmingham, Ala.: "Vitamins in the Practice of Medicine."

SECTION ON SURGERY, GENERAL AND ABDOMINAL

WEDNESDAY, JUNE 14—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Frederick A. Collier, Ann Arbor, Mich.

Dr. George D. Lilly, Miami, Fla., read a paper on "Alcoholic Injection of the Lumbar Sympathetic Trunk in Cases of Peripheral Vascular Insufficiency When Surgical Sympathectomy Is Contraindicated." Discussed by Dr. Arthur W. Allen, Boston.

Dr. Keith S. Grimson, Durham, N. C., read a paper on "The Effect of Activity, Rest, Natural Sleep, Sodium Amytal, Pentothal Sodium, Chloralose and Ether on Experimental Neurogenic

Hypertension." Discussed by Drs. Geza de Takats, Chicago, and Emmet B. Bay, Chicago.

Dr. I. A. Bigger, Richmond, Va., read a paper on "The Management of Traumatic Aneurysms and Arteriovenous Fistulas." Discussed by Drs. John DeJ. Pemberton, Rochester, Minn., and Waller Overton Bullock, Lexington, Ky.

Dr. Geza de Takats, Chicago, read a paper on "The Causal State in Peace and War." Discussed by Dr. Warren H. Cole, Chicago.

Dr. Arthur W. Allen, Boston, read a paper on "Femoral Vein Interruption for the Treatment of Phlebothrombosis and Pulmonary Embolism." Discussed by Dr. Alton Ochsner, New Orleans.

Drs. John H. Garlock and Burrill B. Crohn, New York, presented a paper on "An Appraisal of the Results of Surgery in the Treatment of Regional Ileitis." Discussed by Drs. Henry W. Cave, New York; Claude F. Dixon, Rochester, Minn., and Burrill B. Crohn, New York.

Dr. Rawley M. Penick Jr., New Orleans, read a paper on "Problems in the Surgical Treatment of Congenital Megacolon." Discussed by Drs. J. Arnold Bagen, Rochester, Minn.; Reginald H. Smithwick, Boston; K. S. Grimson, Durham, N. C., and Arthur W. Allen, Boston.

THURSDAY, JUNE 15—AFTERNOON

The following officers were elected: chairman, Lieut. Col. Daniel C. Elkin, M. C., A. U. S.; vice chairman, Dr. William A. Andrews, Johnson City, N. Y.; secretary, Dr. Alton Ochsner, New Orleans; delegate, Col. Grover Penberthy, M. C., A. U. S.; alternate, Dr. I. A. Bigger, Richmond, Va.; member of board of governors, American College of Surgeons, Dr. Walter G. Phippen, Salem, Mass., and Dr. Charles S. Kennedy, Detroit; representatives on Committee on Industrial Health of the Section on Surgery: chairman, Dr. S. Perry Rogers, Chicago; Dr. William L. Estes, Bethlehem, Pa.; Dr. Henry C. Marble, Boston, and Dr. Thomas M. Joyce, Portland, Ore., and Dr. John Huber Wagner, Pittsburgh; representative to Scientific Exhibit, Dr. Owen H. Wagensteen, Minneapolis; executive committee: Dr. Arthur W. Allen, Boston; Dr. Frederick A. Collier, Ann Arbor, Mich., and Lieut. Col. Daniel C. Elkin, M. C., A. U. S.

Dr. Carl Bearse, Boston, read a paper on "Gallstones: The Time Factor in the Development of Complications." Discussed by Drs. I. S. Otis, Meriden, Conn.; John M. Fallon, Worcester, Mass., and Otto De Muth, Vancouver, B. C.

Dr. Frederick A. Collier, Ann Arbor, Mich., read the chairman's address, entitled "Blood Loss During Operation."

Drs. Warren H. Cole, Danely P. Slaughter and Lewis J. Rossiter, Chicago, presented a paper on "Potential Dangers of Nontoxic Nodular Goiter." Discussed by Drs. Frank H. Lahey, Boston; George M. Curtis, Columbus, Ohio; Brien T. King, Seattle, and Danely P. Slaughter, Chicago.

Dr. Forrest O. J. Young, Rochester, N. Y., read a paper on "The 'Suture' of Wounds by Plasma-Thrombin Adhesion." Discussed by Drs. R. T. Tidrick, Iowa City; E. D. Warner, Iowa City, and W. J. Carson, Milwaukee.

Drs. Frank E. Adair and Norman Treves, New York, Lieut. Comdr. Joseph H. Farrow (MC), U.S.N.R., and Isabelle M. Scharnagel, New York, presented a paper entitled "A Report of the Clinical Effects of Surgical and X-Ray Castration in Mammary Cancer." Discussed by Drs. Lawrence A. Pomeroy, Cleveland; J. Shelton Horsley, Richmond, Va.; W. E. Chamberlain, Philadelphia, and Norman Treves, New York.

Drs. Willard H. Parsons and John C. Henthorne, Vicksburg, Miss., and Major R. Lee Clark Jr., M. C., A. U. S., presented a paper on "Plasma Cell Mastitis." Discussed by Drs. Warren H. Cole, Chicago; R. L. Sanders, Memphis, Tenn.; Frank E. Adair, New York, and John C. Henthorne, Vicksburg, Miss.

FRIDAY, JUNE 16—AFTERNOON

A joint meeting was held with the Section on Gastro-Enterology and Proctology. The proceedings are reported in the minutes of that section.

SECTION ON OBSTETRICS AND GYNECOLOGY

WEDNESDAY, JUNE 14—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. Louis E. Phaneuf, Boston.

Dr. Richard Torpin, Augusta, Ga., read a paper on "The Influence of the Placental Site on Fetal Presentation."

Drs. Louis R. Limarzi and John R. Wolff, Chicago, presented a paper on "The Anemias of Pregnancy: A Clinical and Hematologic Study Based on the Correlation of the Peripheral Blood and Bone Marrow Findings." Discussed by Drs. William J. Dieckmann, Chicago; Howard L. Alt, Evanston, Ill.; Frank H. Bethell, Ann Arbor, Mich., and Louis R. Limarzi, Chicago.

Drs. William F. Mengert, Dallas, Texas, and Lieut. (jg) Lester D. Odell (MC), U.S.N.R., presented a paper on "The Overweight Obstetric Patient." Discussed by Drs. Fred H. Falls, Chicago; Newlin F. Paxson, Philadelphia, and William F. Mengert, Dallas, Texas.

Dr. Priscilla White, Boston, read a paper on "Diabetes in Pregnancy." Discussed by Drs. Henry Dolger, New York; William J. Dieckmann, Chicago; R. Carrasco-Formiguera, Puebla, Mexico, and Priscilla White, Boston.

Drs. Rupert E. Arnell, New Orleans, and Daniel W. Goldman, Shreveport, La., presented a paper on "Protein Deficiencies in Pregnancy." Discussed by Drs. Philip F. Williams, Philadelphia; Wilfred N. Sisk, Asheville, N. C., and Rupert E. Arnell, New Orleans.

Dr. Curtis J. Lund, Minneapolis, read a paper on "Nutrition in Pregnancy." Discussed by Dr. Fred L. Adair, Chicago.

The chairman appointed Drs. George W. Kosmak, New York, and Marvin Pierce Rucker, Richmond, Va., to fill vacancies on the executive committee.

THURSDAY, JUNE 15—MORNING

The following officers were elected: chairman, Dr. Philip F. Williams, Philadelphia; vice chairman, Dr. Francis Bayard Carter, Durham, N. C.; secretary, Dr. William F. Mengert, Dallas, Texas; executive committee: Dr. Walter T. Dannreuther, New York; Dr. Louis E. Phaneuf, Boston; Dr. Philip F. Williams, Philadelphia; members of board of governors, American College of Surgeons: Dr. Emil Novak, Baltimore; Dr. Thomas K. Brown, St. Louis, and Dr. Alice Maxwell, San Francisco; representatives to American Committee of Maternal Welfare: Dr. R. D. Mussey, Rochester, Minn.; Dr. W. B. Thompson, Los Angeles, and Dr. Oren Moore, Charlotte, N. C.; representatives on American Board of Obstetrics and Gynecology: Dr. Francis Baird Carter, Durham, N. C.; Dr. Louis E. Phaneuf, Boston, and Dr. Ludwig A. Emge, San Francisco.

A report of the Committee on the Health of Women in Industry was presented by Dr. H. Close Hesselstine, Chicago, chairman.

Drs. Catharine Macfarlane and Margaret C. Sturgis, Philadelphia, presented a paper on "The Value of Periodic Pelvic Examination in the Control of Cancer of the Uterus." Discussed by Drs. Norman Treves, New York, and Augusta Webster, Chicago.

Drs. Lewis C. Scheffey and David M. Farrell, Philadelphia, presented a paper on "The Role of Injudicious Hormonal Therapy in the Delayed Diagnosis of Uterine Cancer." Discussed by Drs. Edward D. Allen, Chicago; Joe Vincent Meigs, Boston; James A. Corcadan, New York; Karl H. Martzloff, Portland, Ore.; Richard W. Telinde, Baltimore, and Karl J. Karnack, Houston, Texas.

Dr. Clyde L. Randall, Buffalo, read a paper on "Recognition of Women Predisposed to Adenocarcinoma of the Uterus." Discussed by Drs. Herbert E. Schmitz, Chicago, and Louis C. Kress, Albany, N. Y.

Dr. James A. Corcadan, New York, read a paper on "Evaluation of Radiation in the Treatment of Carcinoma of the Cervix." Discussed by Drs. Lewis C. Scheffey, Philadelphia; H. F. Schmitz, Chicago, and Clyde L. Randall, Buffalo.

Dr. Richard W. TeLinde, Baltimore, read a paper on "The Treatment of Uterine Prolapse and Associated Conditions." Discussed by Drs. George H. Gardner, Chicago; Roland S. Cron, Milwaukee; J. E. Cannaday, Charleston, W. Va.; John M. Fallon, Worcester, Mass.; Channing W. Barrett, Chicago; R. C. Austin, Dayton, Ohio; C. Gordon Johnson, New Orleans, and K. M. Martzloff, Portland, Ore.

Dr. Louis E. Phancuf, Boston, read a paper on "The Progress of Gynecology During the Last Quarter of a Century."

FRIDAY, JUNE 16—MORNING

A joint meeting was held with the Section on Urology.

Dr. E. Granville Crabtree, Boston, read a paper on "Use of the Sulfonamide Drugs in Pylonephritis in Pregnancy." Discussed by Drs. Jacob F. Greenhill, Chicago; Goodrich C. Schaeffer, Portland, Ore.; Budd C. Corbus, Chicago, and A. J. Kobak, Chicago.

Dr. J. M. Hundley Jr., Baltimore, read a paper on "Influence of Gynecologic Disorders on Urinary System" Discussed by Drs. Nelse F. Ockerblad, Kansas City, Mo., and Vincent J. O'Connor, Chicago.

Dr. George H. Gardner, Chicago, read a paper on "Infertility: Our Responsibilities in Diagnosis." Discussed by Drs. Robert M. Grier, Evanston, Ill.; Ralph A. Reis, Chicago; V. D. Lespinasse, Chicago; Henry K. Sangree, Philadelphia; A. R. Abarbanel, Washington, D. C.; C. J. Stamm, Philadelphia, and Jacob P. Greenhill, Chicago.

Drs. Herman L. Kretschmer and Noble Sproat Heaney, Chicago, presented a paper on "Pylitis of Pregnancy: Foci of Infection in Prophylaxis."

Dr. A. I. Folsom, Dallas, read a paper on "The Female Urethra."

These two papers were discussed by Drs. Vincent J. O'Connor, Chicago; V. D. Lespinasse, Chicago; H. W. Howard, Portland, Ore., and Lieut. Col. Harry M. Kerschbaum, M. C., A. U. S.

Lieut. Col. L. W. Riba, M. C., A. U. S., read a paper on "Sulfonamide Resistant Gonorrhea Treated with Penicillin: Report of 450 Cases."

SECTION ON OPHTHALMOLOGY

WEDNESDAY, JUNE 14—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Conrad Berens, New York.

Dr. Conrad Berens, New York, read the chairman's address, entitled "The Making of an Ophthalmologist"

Dr. William L. Benedict, Rochester, Minn., the Guest of Honor, read a paper entitled "Diagnosis of Orbital Tumors."

Drs. Hayes Martin and Algernon B. Reese, New York, presented a "Progress Report on the Treatment of Bilateral Retinoblastoma by Surgery and Irradiation with the Purpose of Conserving Vision in One Eye." Discussed by Drs. A. F. M. de Roeth, Spokane, Wash.; Richard C. Gamble, Chicago, and Algernon B. Reese, New York.

Dr. C. L. Pannabecker, Ann Arbor, Mich., read a paper on "Neuroparalytic Keratitis: Ocular Complications Following Operations for Trigeminal Neuralgia." Discussed by Drs. A. D. Ruedemann, Cleveland; Major J. M. Masters, M. C., A. U. S., and C. L. Pannabecker, Ann Arbor, Mich.

Drs. Herman M. Burian and Kenneth N. Ogle, Hanover, N. H., presented a paper on "Meridional Aniseikonia at Oblique Axes." Discussed by Drs. Lawrence T. Post, St. Louis; Ernest A. W. Sheppard, Washington, D. C., and Hermann M. Burian, Hanover, N. H.

THURSDAY, JUNE 15—AFTERNOON

Executive Session

It was voted that the minutes of the last executive meeting be approved as printed in the transactions.

The Howe Research Medal was awarded posthumously to Dr. Sanford R. Gifford.

Dr. R. J. Masters, secretary, reported that there was no report from the Committee on Visual Economics.

Dr. Lawrence T. Post, St. Louis, read the report of the American Committee on Optics and Visual Physiology, which was accepted.

Dr. Masters reported that the Committee on the Awarding of the Knapp Medal recommended that the Knapp Medal be not awarded this year. The report was accepted.

The following committee for awarding the Knapp Medal for 1945 was elected from the floor: Dr., A. Ray Irvine, Los Angeles; Dr. F. A. Davis, Madison, Wis., and Frederick Herman Verhoeff, Boston.

Dr. S. Judd Beach, Portland, Maine, read the report of the American Board of Ophthalmology, which was accepted.

Dr. J. S. Friedenwald, Baltimore, presented a report for the Committee on National Museum of Ophthalmic Pathology. The report was accepted.

Dr. Masters presented the report of the Committee on Scientific Exhibit, which was accepted, and a vote of thanks extended Dr. Georgiana D. Theobald.

Dr. Robert von der Heydt, Chicago, reported that there had been no objects of interest contributed to the Museum of Ophthalmic History during the past two years.

Dr. Walter B. Lancaster, Hanover, N. H., read the report of the Committee on Orthoptics, which was accepted.

Dr. William L. Benedict, Rochester, Minn., reported that the Committee of the Student Health Association of the National Educational Association had been inactive during the past eighteen months, owing to several members entering military service.

Dr. Arthur J. Bedell, Albany, N. Y., reported as delegate of the section to the House of Delegates, and the report was accepted with thanks.

Dr. Parker Heath, Detroit, reported that the Committee on Ophthalmic Literature had been relatively inactive and recommended that the committee be continued. The report was accepted.

Dr. Albert C. Snell, Rochester, N. Y., read the report of the Committee on Industrial Ophthalmology. The report was accepted.

Dr. William L. Benedict, Rochester, Minn., in reporting as representative of the Council on Pan American Council, said that the Congress scheduled to be held in Montevideo in 1944 was canceled but that plans were proceeding for a congress in Montevideo in November 1945.

Dr. Parker Heath, Detroit, presented the report of the Knapp Testimonial Fund Committee. The report was accepted.

Dr. Lawrence T. Post, St. Louis, reported for Dr. Hayward Post, representative of the section to the Board of Governors of the College of Surgeons, that there had been no College of Surgeons meeting since his appointment.

Dr. Albert C. Snell, Rochester, N. Y., read the report of the executive committee as follows: The executive committee, in accord with a ruling by the Secretary of the American Medical Association, has continued to function in the interval between the last meeting of this section in June 1942 and this meeting. The following are the important acts of this committee: 1. The election of a permanent secretary. 2. The presentation of a number of papers as two symposiums on ophthalmologic subjects, which were published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, since no transactions of the Section on Ophthalmology were published in 1943. The symposiums covered two general topics as follows: A. Ocular therapeutics: 1. Fever therapy. F. C. Cordes. 2. Chemotherapy. Parker Heath. 3. Epidemic keratoconjunctivitis (The Epidemiology of). A. J. Bedell. B. Ophthalmology in the War Years: 1. Ocular Complications of Head Injuries. D. J. Lyle. 2. Eye Problems Resulting from the Stepped Up War Program in Industry. Hedwig Kuhn. 3. Eye Injuries. C. P. Clark. 4. Intraocular Foreign Bodies. Edward Stieren. 3. Appointment of vacancies in various committees. 4. The arrangement of the program for the present meeting, for the success of which we are largely indebted to our efficient secretary, Dr. Robert Masters. The report was accepted.

The executive committee recommended that A. The following committees be continued unchanged: (a) Committee on Visual Economics. (b) Committee on National Museum of Ophthalmic

Pathology (Joint). (c) Committee on Scientific Exhibits from Section. (d) Committee on Museum of Ophthalmic History. (e) Committee on Ophthalmic Literature. (f) Committee on Industrial Ophthalmology. (g) Knapp Testimonial Fund Committee. (h) Representative to Council, Pan American Congress. (i) Representative of Section to Board of Governors, College of Surgeons. B. That the following committees be continued with appointments for each respective committee: (a) American Committee on Optics and Visual Physiology. Dr. Walter B. Lancaster to replace Dr. Gifford. Dr. Thomas Allen to be appointed. (b) Orthoptic Council. Dr. Truman Boyer to replace Maynard Wheeler. (c) American Board of Ophthalmology. Dr. Everett L. Goar, for four years, to replace Dr. S. Judd Beach. The report was accepted.

The executive committee recommended that the Council on Industrial Health be authorized to continue the work of the special committee on research and reports and that this committee be given sufficient financial support for the employment of adequate personnel in the headquarters office to promote the activities of this committee. The recommendation was accepted.

The executive committee recommended that the section appoint a committee of five on optical dispensing, this committee to undertake a thorough study of all phases of the dispensing of optical services and supplies, and that the American Medical Association be requested to appropriate a sum of \$2,500 or as much thereof as may be necessary, that this committee may be able to employ adequate personnel to carry out the purposes of this committee. The recommendation was accepted.

The executive committee recommended that the project of testing and standardizing tonometers, sponsored by the Academy of Ophthalmology and Otolaryngology, be approved and endorsed by the section. The recommendation was accepted.

The executive committee recommended that a committee of five on ophthalmic public relations be appointed. The recommendation was accepted.

The executive committee reported that a tentative resolution had been prepared by the executive committee concerning the relations of ophthalmology with optometry, which it would refer to the newly appointed Committee on Ophthalmic Public Relations.

The following officers were elected: chairman, Dr. Frederick C. Cordes, San Francisco; vice chairman, Dr. Grady E. Clay, Atlanta, Ga.; secretary, Dr. Robert J. Masters, Indianapolis; delegate, Dr. Arthur J. Bedell, Albany, N. Y.; alternate, Dr. A. D. Ruedemann, Cleveland.

Scientific Session

Dr. Peter C. Kronfeld, Chicago, read a paper entitled "In Search of Gonioscopic Correlates of Responsiveness to Miotics in Glaucoma." Discussed by Drs. H. Isabelle McGarry, Chicago; John M. McLean, New York; C. W. Ascher, Cincinnati, and Peter C. Kronfeld, Chicago.

Dr. Paul A. Chandler, Boston, read a paper on "Choice of Operation in Glaucoma." Discussed by Drs. Edward C. Ellett, Memphis, Tenn.; Harry S. Gradle, Chicago; John M. McLean, New York, and Paul A. Chandler, Boston.

Dr. Kenneth C. Swan, Iowa City, read a paper on "Dibutoline: A New Mydriatic and Cycloplegic Drug." Discussed by Drs. S. Judd Beach, Portland, Maine; Jonas S. Friedenwald, Baltimore; William H. Crisp, Denver, and Kenneth C. Swan, Iowa City.

Dr. Ralph O. Rychener, Memphis, Tenn., read a paper on "The Management of Traumatic Hyphemia." Discussed by Drs. F. Bruce Fralick, Ann Arbor, Mich.; Hugo L. Bair, Rochester, Minn.; William B. Clark, New Orleans; Paul A. Chandler, Boston, and Ralph O. Rychener, Memphis, Tenn.

Dr. Harvey E. Thorpe, Pittsburgh, read a paper on "Non-magnetic Intraocular Foreign Bodies." Discussed by Drs. Edmund B. Spaeth, Philadelphia; Major Meyer H. Rivchun, M. C., A. U. S., and Harvey E. Thorpe, Pittsburgh.

FRIDAY, JUNE 16—MORNING

A joint meeting was held with the Section on Laryngology, Otolaryngology and Rhinology.

The following papers were read as a symposium on "The Treatment of Chronic Dacryocystitis":

Dr. Harold Gifford Jr., Omaha: "Discussion of Dacryocystitis from the Point of View of the Ophthalmologist."

Dr. Laverne B. Spake, Kansas City, Kan.: "Treatment of Chronic Dacryocystitis from the Point of View of the Rhinologist."

These two papers were discussed by Drs. Charles T. Porter, Boston; Joseph I. Kemler, Baltimore; H. P. Mosher, Boston; Lawrence B. Spake, Kansas City, Kan., and Harold Gifford Jr., Omaha.

The following papers were read as a symposium on "The Use of Penicillin in the Treatment of Diseases of the Eye, Ear, Nose and Throat":

Lieut. Col. John E. L. Keyes, M. C., A. U. S.: "Use of Penicillin in Diseases of the Eye."

Capt. C. A. Swanson (MC), U.S.N., and Lieut. D. C. Baker (MC), U.S.N.R.: "The Use of Penicillin in Diseases of the Ear."

Capt. F. J. Putney, M. C., A. U. S.: "The Use of Penicillin in Diseases of Nose and Throat."

These three papers were discussed by Major Elmer A. Vorisek, M. C., A. U. S.; Major Walter J. Aagesen, M. C., A. U. S.; Comdr. E. E. Koebbe, U.S.N.R., U. S. Naval Hospital, Great Lakes, Ill.; Capt. Robert Henner, Barksdale Field, Louisiana; Capt. F. J. Putney, M. C., A. U. S.; Capt. C. A. Swanson (MC), U.S.N., and Lieut. Col. John E. L. Keyes, M. C., A. U. S.

SECTION ON LARYNGOLOGY, OTOLARYNGOLOGY AND RHINOLOGY

WEDNESDAY, JUNE 14—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. Claude C. Cody, Houston, Texas.

Drs. Fred Z. Havens and William C. Thornell, Rochester, Minn., presented a paper on "Malignant Tumors of the Nasal Cavity." Discussed by Drs. Thomas E. Carmody, Denver; Thomas C. Galloway, Evanston, Ill., and Fred Z. Havens, Rochester, Minn.

Dr. Barney M. Kully, Los Angeles, read a paper on "The Use and Abuse of Nasal Vasoconstrictors." Discussed by Drs. Lawrence R. Boies, Minneapolis; O. E. Van Alyea, Chicago, and Barney M. Kully, Los Angeles.

Dr. Harry L. Baum, Denver, read a paper on "Treatment of Acute Laryngotracheobronchitis." Discussed by Drs. T. Roy Gittins, Sioux City, Iowa; Paul H. Holinger, Chicago; Otto Jason Dixon, Kansas City, Mo.; Fred Z. Havens, Rochester, Minn.; Lieut. Comdr. J. J. Potter, Great Lakes Naval Training Station, and Harry L. Baum, Denver.

Dr. William H. Johnston, Santa Barbara, Calif., read a paper on "Nasal Sinus Disease in Children; Its Diagnosis and Treatment." Discussed by Drs. Glenn J. Greenwood, Chicago; James M. Robb, Detroit; Burt R. Shurly, Detroit; Thomas E. Carmody, Denver; A. C. Hilding, Duluth, Minn.; O. E. Van Alyea, Chicago, and William H. Johnston, Santa Barbara, Calif.

Dr. Horace J. Williams, Philadelphia, read a paper on "The Use of Skin Graft in Tympanomastoidectomy." Discussed by Drs. John F. Delph, Chicago; William E. Grove, Milwaukee; Frederick Leaver Stauffer, Salt Lake City, and Horace J. Williams, Philadelphia.

THURSDAY, JUNE 15—MORNING

Executive Session

On motion by Dr. Gordon F. Harkness, Davenport, Iowa, seconded by Thomas E. Carmody, Denver, Edward J. Ryan, D.D.S., Evanston, Ill., was nominated for Associate Fellowship.

Dr. Louis H. Clerf, secretary, reported progress for the Advisory Committee of Council on Industrial Health, and the committee was instructed to continue its work.

Dr. Clerf reported progress for the Committee on Lye Legislation, and the committee was continued.

Dr. Claude C. Cody, the chairman, appointed Dr. W. E. Grove of Milwaukee as a candidate for the Board of Governors of the American College of Surgeons.

Dr. Clerf read a letter from the Argentine Society of Bronchoesophagoscopy, and the chairman instructed the incoming secretary to reply.

The following officers were elected: chairman, Dr. Louis H. Clerf, Philadelphia; vice chairman, Dr. Henry B. Orton, Newark, N. J.; secretary, Dr. Fletcher W. Woodward, Charlottesville, Va.; executive committee: Dr. Gordon F. Harkness, Davenport, Iowa; Dr. Claude C. Cody, Houston, Texas, and Dr. Louis H. Clerf, Philadelphia; delegate, Dr. Burt R. Shurly, Detroit; alternate, Dr. Gordon F. Harkness, Davenport, Iowa. Dr. LeRoy A. Schall, Boston, and Dr. John J. Shea, Memphis, Tenn., were appointed to the American Board of Otolaryngology.

A new gavel was presented to the section, and it was voted that the cost of the gavel be defrayed by the section.

Scientific Session

Dr. Claude C. Cody, Houston, Texas, read the chairman's address, entitled "Vitamin Therapy in Otolaryngology."

Dr. Marvin F. Jones, New York, read a paper on "Disturbed Vestibular Function: The Causes and Cures." Discussed by Drs. Lyle M. Sellers, Dallas, Texas; George E. Shambaugh Jr., Chicago, and Marvin F. Jones, New York.

Dr. Oram R. Kline, Camden, N. J., read a paper on "The Importance of Pathology of the Nasopharynx to the Otolaryngologist." Discussed by Drs. C. H. McCaskey, Indianapolis; Walter H. Theobald, Chicago; Barney M. Kully, Los Angeles, and Oram R. Kline, Camden, N. J.

Dr. Forrest W. Merica, Lakewood, Ohio, read a paper on "The Local Use of Sulfonamides in the Surgical Treatment in Diseases of the Ear."

Dr. Edward J. Whalen, Hartford, Conn., read a paper on "Sulfonamides in the Treatment of Nasal Sinus Disease."

These two papers were discussed by Drs. Ralph A. Fenton, Portland, Ore.; J. R. Lindsay, Chicago; M. M. Cullom, Nashville, Tenn.; H. W. Angell, Charleston, W. Va.; Claude C. Cody, Houston, Texas; Forrest W. Merica, Lakewood, Ohio, and Edward J. Whalen, Hartford, Conn.

FRIDAY, JUNE 16—MORNING

A joint meeting was held with the Section on Ophthalmology. The proceedings are reported in the minutes of that section.

SECTION ON PEDIATRICS

WEDNESDAY, JUNE 14—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Hugh L. Dwyer, Kansas City, Mo.

Drs. Wallace S. Sako and W. L. Treuting, New Orleans, David B. Witt, Surgeon (R), U. S. P. H. S., and S. J. Nichamin, Surgeon (R), U. S. P. H. S., presented a paper on "The Early Immunization Against Pertussis." Discussed by Drs. Louis W. Sauer, Evanston, Ill., and Wallace S. Sako, New Orleans.

Dr. M. J. Shapiro, Minneapolis, read a paper on "The Pre-operative Diagnosis of Patent Ductus Arteriosus." Discussed by Drs. Leo G. Rigler, Minneapolis; Harry Vesell, New York, and M. J. Shapiro, Minneapolis.

Dr. Roger L. J. Kennedy, Rochester, Minn., read a paper on "Precocious Skeletal Development in Children." Discussed by Dr. John R. Vonachen, Peoria, Ill.

Dr. Oscar Reiss, Los Angeles, read a paper on "Mental Hygiene Aspects of Pediatrics." Discussed by Drs. Bert I. Beverly, Chicago; Ernst Wolff, San Francisco, and Oscar Reiss, Los Angeles.

Dr. J. Albert Key, St. Louis, read a paper on "Indications For and Evaluation Of Measures Used in the Treatment of Poliomyelitis." Discussed by Drs. Miland E. Knapp, Minneapolis; John A. Toomey, Cleveland, and J. Albert Key, St. Louis.

Major Ralph H. Kunststadter, M. C., A. U. S., and Major Robert C. Pendergrass, M. C., A. U. S., presented a paper on

"Primary Coccidioidomycosis." Discussed by Major William H. Wood Jr., M. C., A. U. S.

On invitation of the chairman, Dr. Isaac Abt, Chicago, addressed the section.

THURSDAY, JUNE 15—AFTERNOON

The following papers were read as a symposium on "Abdominal Pain in Children":

Dr. Joseph Brennemann, Reading, Vt.: "The Pediatric View." Discussed by Drs. M. G. Peterman, Milwaukee; Joseph Golomb, New York, and Joseph Brennemann, Reading, Vt.

Dr. Bret Ratner, New York: "The Allergic View." Discussed by Drs. J. Victor Greenebaum, Cincinnati; W. Ambrose McGee, Richmond, Va., and Bret Ratner, New York.

Dr. Meredith F. Campbell, New York: "The Urologic View."

Dr. Alfred A. Strauss, Chicago: "The Surgical View."

These two papers were discussed by Drs. Herbert E. Coe, Seattle, and Ernst Wolff, San Francisco.

Dr. T. L. Terry, Boston, read a paper on "Ocular Maldevelopment in Extremely Premature Infants." Discussed by Drs. H. N. Sanford, Chicago; E. V. L. Brown, Chicago; A. J. Strich, Chicago, and T. L. Terry, Boston.

Dr. Victor Ross, New York, read a paper on "Preparation and Immunizing Properties of Protamine-Toxoid (Diphtheria)." Discussed by Dr. Ernest L. Stebbins, New York.

FRIDAY, JUNE 16—AFTERNOON

The following officers were elected: chairman, Dr. John Aikman, Rochester, N. Y.; vice chairman, Dr. Henry G. Poncher, Chicago; secretary, Dr. Gilbert J. Levy, Memphis, Tenn.; delegate, Dr. William Weston, Columbia, S. C.; alternate, Dr. Julius H. Hess, Chicago; executive committee: Dr. Philip M. Stimson, New York; Dr. Hugh L. Dwyer, Kansas City, Mo., and Dr. John Aikman, Rochester, N. Y.; representative to Scientific Assembly, Dr. W. Ambrose McGee, Richmond, Va.

The following papers were read as a symposium on "Rheumatic Fever":

Dr. May G. Wilson, New York: "Recurrence Rates in Rheumatic Fever."

Dr. T. Duckett Jones, Boston: "Diagnosis of Rheumatic Fever."

Dr. David D. Rutstein, New York: "The Role of the Cardiac Clinic in the Rheumatic Fever Program."

Major A. C. H. van Ravenswaay, M. C., A. U. S.: "Geographic Factors in Acute Rheumatic Fever."

Dr. Caroline Bedell Thomas, Baltimore: "The Prevention of Recurrences in Rheumatic Fever Subjects."

These five papers were discussed by Drs. John R. Paul, New Haven, Conn.; Col. W. Paul Holbrook, M. C., A. U. S.; Drs. Stanley Gibson, Chicago; J. W. Scott, Lexington, Ky.; J. D. Keith, Nova Scotia; Paul F. Dwan, Minneapolis; May G. Wilson, New York; T. Duckett Jones, Boston; David D. Rutstein, New York; Major A. C. H. van Ravenswaay, M. C., A. U. S., and Dr. Caroline Bedell Thomas, Baltimore.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

WEDNESDAY, JUNE 14—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Tinsley R. Harrison, Dallas, Texas.

Drs. O. H. Robertson and Morton Hamburger Jr., Chicago, Capt. Clayton G. Loosli, M. C., A. U. S., Dr. Theodore T. Puck, Chicago, Lieut. Henry M. Lemon, M. C., A. U. S., and Dr. Henry Wise, Camp Carson, Colorado, presented a paper on "A Study of the Nature and Control of Air Borne Infection in Army Camps." Discussed by Drs. Edward Bigg, Evanston, Ill.; C. H. Rammelkamp, Fort Bragg, North Carolina; Francis G. Blake, New Haven, Conn., and Truman S. Potter, Chicago.

Dr. Lawrence W. Smith, Philadelphia, read a paper on "Wound Healing: An Experimental Study of Water Soluble

Chlorophyll) Derivatives in Conjunction with Various Antibacterial Agents." Discussed by Drs. Conrad R. Lam, Detroit; Lawrence W. Smith, Philadelphia, and Benjamin Gruskin, Chicago.

Drs. David Adlersberg and Henry Dolger, New York, presented a paper on "Insulin Mixtures in the Treatment of Diabetes: Variable versus Fixed Ratios of Insulin and Protamine Zinc Insulin." Discussed by Dr. Howard F. Root, Boston.

Dr. R. A. Woodbury, Augusta, Ga., and Lieut. P. H. Fried, M. C., A. U. S., presented a paper on "Influence of Neostigmine on Eclamptic Patients and Cholinesterase Activity of Normal and Preeclamptic Human Placentas." Discussed by Drs. A. R. Abarbanel, Washington, D. C.; J. Isfred Hofbauer, Cincinnati, and R. A. Woodbury, Augusta, Ga.

Lieut. Comdr. David H. Rosenberg (MC), U.S.N.R., and Lieut. P. A. Arling (MC), U.S.N.R., presented a paper on "Penicillin in the Treatment of Meningitis." Discussed by Dr. Wallace E. Herrell, Rochester, Minn., and Lieut. Comdr. David H. Rosenberg (MC), U.S.N.R.

Drs. Robert H. Williams and Howard M. Clute, Boston, presented a paper on "Thiouracil in the Treatment of Thyrotoxicosis." Discussed by Drs. W. O. Thompson, Chicago; Elmer C. Bartles, Boston; Karl E. Paschkis, Philadelphia; Rulon W. Rawson, Boston, and Robert H. Williams, Boston.

Drs. M. G. Fredricks and F. W. Hoffbauer, Minneapolis, presented a paper on "A Study of Liver Function in Therapeutic Malaria." Discussed by Drs. L. W. Diggs, Memphis, Tenn., and M. G. Fredricks, Minneapolis.

THURSDAY, JUNE 15—AFTERNOON

The following officers were elected: chairman, Dr. Edgar V. Allen, Rochester, Minn.; vice chairman, Dr. Carl A. Dragstedt, Chicago; secretary, Dr. Dwight L. Wilbur, San Francisco; delegate, Dr. Edgar V. Allen, Rochester, Minn.; alternate, Dr. C. M. Gruber, Philadelphia; in charge of exhibits, Dr. Robert W. Wilkins, Boston; executive committee: Dr. Wallace M. Yater, Washington, D. C.; Dr. Tinsley R. Harrison, Dallas, Texas, and Dr. Edgar V. Allen, Rochester, Minn.

The following papers were read as a symposium on "The Abuse of Rest in the Treatment of Disease":

Dr. Tinsley R. Harrison, Dallas, Texas: Chairman's address: "The Abuse of Rest as a Therapeutic Measure in Patients with Cardiovascular Disease."

Dr. Nicholson J. Eastman, Baltimore: "The Abuse of Rest in Obstetrics."

Dr. John H. Powers, Cooperstown, N. Y.: "The Abuse of Rest as a Means of Surgical Treatment: Early Postoperative Activity and Rehabilitation."

Dr. William Dock, Los Angeles: "The Evil Sequels of Complete Bed Rest."

Dr. Ralph K. Ghormley, Rochester, Minn.: "The Abuse of Rest as a Means of Treatment in Orthopedic Surgery."

Dr. Karl A. Menninger, Topeka, Kan.: "The Abuse of Rest as a Means of Treatment in Neuropsychiatry."

These six papers were discussed by Drs. J. Ross Veal, Washington, D. C.; Frank H. Krusen, Rochester, Minn.; H. Close Hesselting, Chicago; Comdr. J. Murray Steel, Bethesda, Md.; Drs. D. J. Leithauser, Detroit; E. V. Allen, Rochester, Minn.; Don C. Sutton, Chicago; Louis N. Katz, Chicago; Nicholson J. Eastman, Baltimore; John H. Powers, Cooperstown, N. Y.; William Dock, Los Angeles; Karl A. Menninger, Topeka, Kan., and Tinsley R. Harrison, Dallas, Texas.

Dr. Frank H. Krusen, Rochester, Minn., read a paper on "The Future of Physical Medicine, with Special Reference to the Recommendations of the Baruch Committee on Physical Medicine."

FRIDAY, JUNE 16—AFTERNOON

A joint meeting was held with the Section on Practice of Medicine. The proceedings are reported in the minutes of that section.

SECTION ON PATHOLOGY AND PHYSIOLOGY

WEDNESDAY, JUNE 14—MORNING

The meeting was called to order at 9:10 by the chairman, Dr. Frank C. Mann, Rochester, Minn.

The following were nominated for the American Board of Pathology: Dr. Nathan Chandler Foote, New York, to succeed himself; Dr. Shields Warren, Boston, to succeed Dr. Howard T. Karsner, Cleveland.

The following papers were read as a symposium on "Traumatic Shock":

Dr. Harold D. Green, Cleveland: "Traumatic Ischemic Shock, with Observations on Effects of Environmental Temperature."

Dr. Virgil H. Moon, Philadelphia: "Analysis of Traumatic Shock."

Dr. Joseph C. Aub, Boston: "A Toxic Factor in Traumatic Shock."

These three papers were discussed by Drs. Henry N. Harkins, Baltimore; Frederick M. Allen, New York; Benjamin Jablons, New York; Harold D. Green, Cleveland; Virgil H. Moon, Philadelphia, and Joseph C. Aub, Boston.

Dr. Charles A. Janeway, Boston, read a paper on "The Use of Albumin in Shock and Hypoproteinemia and of Gamma Globulin in Measles."

Dr. Franc D. Ingraham, Boston, read a paper on "The Use of Products of Fibrinogen and Thrombin in Surgery."

These two papers were discussed by Dr. Orville T. Bailey, Boston.

Dr. J. P. Quigley, Cleveland, and Lieut. D. A. Brody, M. C., A. U. S., presented a paper on "Pyloric Sphincter Motility and Its Relation to Gastric Evacuation and Other Phenomena." Discussed by Drs. Frank C. Mann, Rochester, Minn., and J. P. Quigley, Cleveland.

Drs. G. E. Wakerlin, M. L. Goldberg and Clarence A. Johnson, Chicago, presented a paper on "Treatment of Experimental Renal Hypertension with Renal Extracts." Discussed by Drs. Benjamin Jablons, New York, and G. E. Wakerlin, Chicago.

Drs. A. C. Ivy and A. J. Atkinson, Chicago, presented a paper on "The Influence of Caffeine Containing Beverages on Gastric Secretion and the Peptic Ulcer Problem." Discussed by Drs. Albert F. R. Andresen, Brooklyn; Theodore J. Curphley, Garden City, N. Y.; Heinrich Necheles, Chicago, and A. C. Ivy, Chicago.

THURSDAY, JUNE 15—MORNING

Dr. Frank C. Mann, Rochester, Minn., read the chairman's address, entitled "Hypoglycemia and Restoration with Dextrose."

Drs. Harry J. Corper and Maurice L. Cohn, Denver, presented a paper on "The Use of Diasone for the Treatment of Tuberculosis."

Dr. Israel Davidsohn, Chicago, read a paper on "The Diagnosis of Fetal Erythroblastosis." Discussed by Drs. A. G. Foord, Pasadena, Calif., and Israel Davidsohn, Chicago.

The following were nominated for Associate Fellowship: Dr. Béla Halpert, Oklahoma City, and Dr. Howard B. Lewis, Ann Arbor, Mich.

Drs. Roy R. Kracke, William R. Platt and A. M. Oshlag, Emory University, Ga., presented a paper on "Hematologic Problems in Syphilis." Discussed by Drs. Israel Davidsohn, Chicago; Frank W. Hartman, Detroit, and William R. Platt, Emory University, Ga.

Dr. Italo F. Volini, Chicago, Capt. Robert O. Levitt, M. C., A. U. S., and Major Richard R. Martin, M. C., A. U. S., presented a paper on "Sudden Death Due to Intravenous Infection in Mercurial Diuresis." Discussed by Drs. John W. Scott, Lexington, Ky., and Italo F. Volini, Chicago.

Dr Robert P Morehead, Winston Salem N C, read a paper on "Carcinoma in Young Persons Discussed by Capt J Edward Berk, Philadelphia, Drs F L Rector, Lansing, Mich, and Robert P Morehead, Winston-Salem, N C

Dr Tobias Weinberg, Baltimore, read a paper on "A Clinical and Pathologic Study of a Series of Renal Neoplasms"

A nominating committee was appointed consisting of Drs J P Simonds, Chicago, Henry J Cooper, Denver, and G E Wakerlin Chicago

FRIDAY, JUNE 16—MORNING

The following officers were elected chairman Dr Virgil H Moon, Philadelphia, vice chairman Dr J I Moore, Chicago, secretary, Dr Frank W Hartman Detroit delegate, Dr L W Larson, Bismarck, N D, alternate Dr H J Corper, Denver, executive committee Dr J P Simonds, Chicago, Dr Frank C Mann, Rochester, Minn, and Dr Virgil H Moon, Philadelphia

On motion by Dr Virgil H Moon Philadelphia, a rising vote of thanks was given to Dr J J Moore Chicago for his many years of faithful service as secretary of the section

Dr Thomas Francis Jr, Ann Arbor Mich read a paper on "Physiologic Concepts of Virus Infections Discussed by Dr O H Robertson, Chicago

Surgeon Capt C H Best Bytown Ottawa Ontario Canada, read a paper on "Physiologic Contributions to War Medicine" Discussed by Drs Virgil H Moon Philadelphia Frederick M Allen, New York, Everett I Evans Richmond Va, and Surgeon Capt C H Best, Bytown Ontario Canada

Dr Henry N Harkins, Baltimore read a paper on "Recent Research in the Pathology of Burns Discussed by Drs Conrad R Lam, Detroit, H Perry Jenkins Chicago, Virgil H Moon Philadelphia, Everett I Evans Richmond Va, and Henry N Harkins, Baltimore

Lieut Carl C Pfeiffer, MC-V (S) USNR Ensign Lois F Hallman W-V (S) (H), USNR and Lieut I Gersh, H V (S) USNR, presented a paper on The Toxicity of Boric Acid as Applied to the Treatment of Burns Discussed by Drs Charles G Barnum, Groton, Conn Henry N Harkins, Baltimore, Lincoln Oppen, Norwich, Conn and Lieut Carl C Pfeiffer

Lieut Comdr G B Fauley (MC), USNR Lieut T L Duggan (H-VS), USNR, and Lieut (jg) R T Stormont (MC), USNR presented a paper on Use of Penicillin in the Treatment of Peritonitis An Experimental Study

SECTION ON NERVOUS AND MENTAL DISEASES

WEDNESDAY, JUNE 14—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr I M Nielsen, Los Angeles

Dr J M Nielsen, Los Angeles, read the chairman's address, entitled "Subacute Neuromuscular Exhaustion Syndrome"

Dr Henry R Viets, Boston, read a paper on "Myasthenia Gravis Discussed by Drs F G Lindemulder, San Diego, Calif and Henry R Viets, Boston

Drs Hans H Reese and Theodore C Erickson, Madison, Wis, presented a paper on 'Musicogenic Epilepsy' Discussed by Drs Adrien Henri Verbruggen, Chicago, Lewis John Pollock, Chicago Joseph P Reich, Chicago C F Midelfart, Eau Claire, Wis, and Hans H Reese, Madison Wis

Drs Loyal Davis Frederick Hiller, George E Periet and Walter W Carroll, Chicago, presented a paper on 'The Effect of Sulfonamide Drugs on Experimental Gunshot Wounds of Peripheral Nerve'

Dr Francis C Grant, Philadelphia, read a paper on "Epidural Spinal Abscess" Discussed by Drs Adrien H Verbruggen, Chicago, A W Adson, Rochester, Minn, George B Hassin, Chicago, and Francis C Grant Philadelphia

Dr C W Rucker, Rochester Minn, read a paper on "Sheathing of the Retinal Veins in Multiple Sclerosis Discussed by Drs Frederick P Moersch Rochester, Minn, R P Mackay, Chicago, and C W Rucker, Rochester, Minn

THURSDAY, JUNE 15—AFTERNOON

The following officers were elected chairman Dr Percival Bailey, Chicago, vice chairman, Dr H Houston Merritt, Boston, secretary, Dr R P Mackay, Chicago executive committee Dr T T Stone, Chicago, Dr A E Bennett Omaha, and Dr Henry Viets, Boston, delegate, Dr Henry Viets, Boston, alternate, Dr Joseph P Evans, Cincinnati representatives to American Board of Psychiatry and Neurology, Dr Hans H Reese, Madison, Wis, and Dr Walter Freeman Washington, D C, representative on Board of Neurosurgery, Dr Paul Bucy, Chicago, representative to Scientific Exhibit, Dr Frederick P Moersch, Rochester, Minn

Dr R P Mackay, Chicago, read the report of the Committee on Industrial Health, submitted by Dr T T Stone, chairman, which was accepted

Dr Walter Freeman, Washington, D C, gave a report from the American Board of Psychiatry and Neurology, which was accepted

Drs Raymond W Waggoner, Ann Arbor, Mich, Lieut Col William Menninger, M C, A U S, and Comdr Francis J Braceland (MC), USNR, presented a paper on "Psychiatric Selection of Men for the Armed Forces" Discussed by Dr Hans Deutsch, Chicago, Col Leonard G Rowntree M C, A U S, and Dr Raymond W Waggoner, Ann Arbor, Mich

Capt Jack G Sheps, R C A M C Toronto Ont, Canada, read a paper entitled "A Psychiatric Study of Successful Soldiers" Discussed by Lieut Col J D Griffin, R C A M C

A panel discussion on "Operational Fatigue in Combat Aircrews" was participated in by Lieut Col Roy R Gunker and Major Donald W Hastings, M C, A U S, with Major William H Everts, M C, A U S, acting as moderator

Dr George N Thompson Jr, Los Angeles read a paper on "Neurophysiologic Improvements of Electroconvulsion Over Electroshock Therapy in Schizophrenia" Discussed by Drs Lloyd H Ziegler, Wauwatosa, Wis, John S Lundy, Rochester, Minn, J M Nielsen, Los Angeles, Meyer Solomon, Chicago, and George N Thompson Jr, Los Angeles

Drs Lothar B Kalmowsky, S E Barrera and W A Horwitz, New York, presented a paper on "The Question of Electric Convulsive Therapy in Psychoneuroses" Discussed by Drs Abram E Bennett, Omaha, Lloyd H Ziegler, Wauwatosa, Wis, V E Gonda, Chicago, Tom B Throckmorton, Des Moines, Iowa, Walter B Freeman, Washington, D C, and Lothar B Kalmowsky, New York

FRIDAY, JUNE 16—MORNING

A joint meeting was held with the Section on Anesthesiology

Dr E S Gurdjian, Detroit, Major John E Webster, M C, A U S, and Dr W E Stone, Detroit, presented a paper on "Cerebral Metabolism in Experimental Head Injury" Discussed by Drs Francis G Grant, Philadelphia, Warren S McCulloch, Chicago, Percival Bailey, Chicago, and E S Gurdjian Detroit

Drs Perry P Volpito and B E Abreu, Augusta, Ga, presented a paper on "The Influence of Different Forms of Artificial Respiration on the Pulmonary and Systemic Blood Pressure"

Dr Ralph M Waters, Madison, Wis, read a paper on "The Relation of Anesthesia to Hypoxia and Anoxia"

Dr Alfred D Biggs, Chicago, read a paper on 'The Pediatric Aspects of Asphyxia Neonatorum'

Dr William F Windle, Chicago, presented a Motion Picture Demonstration on "Experimental Asphyxia Neonatorum"

Drs. Cyril B. Courville and B. Clemson Marsh, Los Angeles, presented a paper on "Neonatal Asphyxia: Some Observations on Its Neurologic and Neuropathologic Aspects."

These five papers were discussed by Drs. H. M. Livingstone, Chicago; W. H. Cassels, Chicago; William C. Danforth, Evans-ton, Ill.; Ben W. Lichtenstein, Chicago; R. P. Mackay, Chi-cago; Capt. W. Allen Conroy, Chicago; Drs. M. B. Rosenbluth, New York; Perry P. Volpito, Augusta, Ga.; Ralph M. Waters, Madison, Wis.; Alfred D. Biggs, Chicago; William F. Windle, Chicago, and B. Clemson Marsh, Los Angeles.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

WEDNESDAY, JUNE 14—AFTERNOON

The meeting was called to order at 2:05 by the chairman, Dr. Clark W. Finnerud, Chicago.

Dr. Clark W. Finnerud read the chairman's address, entitled "Perleche: Its Nosologic Status."

Dr. George L. Clark, Urbana, Ill., read a paper on "The Electron Microscope in Dermatology." Discussed by Drs. Gregory Schwartzman, New York, and George L. Clark, Urbana, Ill.

Dr. Francis W. Lynch, St. Paul, read a paper on "Kaposi's Varicelliform Eruption: Extensive Herpes Simplex as a Complication of Eczema." Discussed by Drs. Oliver S. Ormsby, Chicago; Clinton W. Lane, St. Louis; Comdr. Marion B. Sulz-berger (MC), U.S.N.R.; Francis A. Ellis, Baltimore; M. H. Ebert, Chicago, and Francis W. Lynch, St. Paul.

Drs. George C. Andrews, Carl B. Braestrup and Eldred B. Heisel, New York, presented a paper on "The Exit Dose in Dermatologic Roentgen Therapy." Discussed by Drs. Harry R. Foerster, Milwaukee, and E. B. Heisel, New York.

Drs. Henry E. Michelson and Carl W. Laymon, Minneapolis, presented a paper on "A Classification of Tuberculosis of the Skin." Discussed by Drs. Ruben Nomland, Iowa City; Fred D. Weidman, Philadelphia; Hamilton Montgomery, Rochester, Minn.; Adolph Rostenberg, Washington, D. C.; Robert Brandt, Cincinnati, and Henry E. Michelson, Minneapolis.

Drs. Garold V. Stryker and William A. Halbeisen, St. Louis, presented a paper on "The Determination of Macrocytic Anemia as an Aid in the Diagnosis of Certain Deficiency Dermatoses." Discussed by Drs. Dudley C. Smith, Charlottesville, Va., and Garold V. Stryker, St. Louis.

THURSDAY, JUNE 15—AFTERNOON

The following officers were elected: chairman, Dr. Clyde Cumner, Cleveland; vice chairman, Dr. Dudley C. Smith, Charlottesville, Va.; secretary, Dr. Nelson P. Anderson, Los Angeles; chairman of exhibit, Dr. Hamilton Montgomery, Rochester, Minn.; delegate, Dr. Cornelius Ferd Lehmann, San Antonio, Texas; alternate, Dr. C. W. Lane, St. Louis; for two one year periods to succeed himself on the American Board of Dermatology and Syphilology, Dr. C. Guy Lane, Boston; to succeed himself for three one year periods on the American Board of Dermatology and Syphilology, Dr. Paul A. O'Leary, Rochester, Minn.

The following papers were read in a panel discussion on "Intensive Therapy of Early Syphilis, with Special Reference to Arsenotherapy Either Alone or Combined with Other Agents." Dr. Arthur G. Schoch, Dallas, Texas, moderator:

Dr. Harry Eagle, surgeon, U. S. P. H. S.: "The Treatment of Early and Latent Syphilis in Six to Twelve Weeks with Triweekly Injections of Mapharsen: An Analysis of the Results in the First 4,823 Cases."

Drs. A. Benson Cannon and Jerome K. Fisher, New York: "Intensive Arsenotherapy."

Dr. Evan W. Thomas, New York: "Combined Fever and Arsenotherapy in the Intensive Treatment of Early Syphilis."

These three papers were discussed by Drs. Herbert Rattner, Chicago; Charles M. Carpenter, Rochester, N. Y.; Paul T. Bruyere, Bethesda, Md.; Arthur C. Curtis, Ann Arbor, Mich.; George X. Schwemlein, Chicago; J. R. Driver, Cleveland; Roy L. Kile, Cleveland; Arthur G. Schoch, Dallas, Texas; Harry Eagle, Baltimore; Jerome K. Fisher, New York, and Evan W. Thomas, New York.

The following papers were read in a panel discussion on "Penicillin in the Treatment of Syphilis," Col. Udo J. Wile, U. S. P. H. S., moderator:

Drs. J. F. Mahoney, surgeon, R. C. Arnold, surgeon, and Ad Harris, serologist, U. S. P. H. S.: "Preliminary Results with Penicillin in Experimental Syphilis of Rabbits and in Early Syphilis of Human Beings."

Drs. Joseph Earle Moore, Baltimore; Lieut. Col. Thomas H. Sternberg, M. C., A. U. S.; Comdr. Walter H. Schwartz (MC), U.S.N.; John F. Mahoney, surgeon, U. S. P. H. S., and Dr. W. Barry Wood Jr., St. Louis: "The Preliminary Results of Penicillin Therapy in Early Syphilis in Human Beings with Varying Schemes of Treatment."

Drs. John H. Stokes, Philadelphia, and J. E. Moore, Balti-more; Lieut. Col. Thomas H. Sternberg, M. C., A. U. S.; Comdr. W. H. Schwartz (MC), U.S.N., and John F. Mahoney, surgeon, U. S. P. H. S.: "Preliminary Results of the Treatment of Late Syphilis with Penicillin."

These three papers were discussed by Lieut. Comdr. E. E. Barksdale (MC), U.S.N.R.; Capt. William Leifer, M. C., A. U. S.; Comdr. Frank A. Ellis, Corpus Christi, Texas; Col. Udo J. Wile, U. S. P. H. S., and Dr. Joseph E. Moore, Baltimore.

FRIDAY, JUNE 16—AFTERNOON

Dr. Hamilton Montgomery presented his report as repre-sentative to the Scientific Exhibit.

Dr. Richard Fowlkes reported for the Auditing Committee that the books were found to be in order and correct.

The chairman stated that Dr. Francis W. Lynch, St. Paul, had been selected as an assistant to Dr. Hamilton Montgomery as chairman of the Scientific Exhibit, beginning next year.

The report of the secretary of the American Board of Der-matology and Syphilology, Dr. C. Guy Lane, was received.

The report of the Committee on Industrial Dermatoses, Dr. Harry R. Foerster, Milwaukee, chairman, was received.

Dr. Francisco Ronchese, Providence, R. I., read a paper on "Calluses, Cicatrices and Other Stigmas as an Aid in Estab-lishing Personal Identity." Discussed by Drs. Louis Schwartz, Bethesda, Md.; John G. Downing, Boston, and Maurice Oppen-heim, Chicago.

Drs. C. Guy Lane, Ethel M. Rockwood, Carl S. Sawyer and Irvin H. Blank, Boston, presented a paper on "Dermatoses of the Hands: Report of Study of 450 Consecutive Cases." Dis-cussed by Drs. Joseph V. Klauder, Philadelphia; Francis E. Seneor, Chicago; George C. Andrews, New York; Lloyd W. Ketron, Baltimore; Comdr. Marion B. Sulzberger (MC), U.S. N.R., and Dr. C. Guy Lane, Boston.

Dr. Harry J. Templeton, Oakland, Calif., read a paper on "Epidermal and Dermal Sensitization." Discussed by Drs. Edward A. Oliver, Chicago; Adolph Rostenberg, Washington, D. C.; Charles C. Dennie, Kansas City, Mo.; Howard Fox, New York, and John G. Downing, Boston.

Major Marion I. Davis, M. C., A. U. S., read a paper on "The Dermatologic Aspects of the Vesicant War Gases." Dis-cussed by Comdr. Robert L. Gilman (MC), U.S.N.R.; Charles C. Dennie, Kansas City, Mo.; Leon Goldman, Cincinnati; C. Guy Lane, Boston, and Major Marion I. Davis.

Drs. Hamilton Montgomery and Paul A. O'Leary, Roches-ter, Minn., presented a paper on "Nodular Vasculitis of the Extremities." Discussed by Drs. Michael H. Ebert, Chicago; John H. Lamb, Oklahoma City; F. D. Weidman, Philadelphia, and Hamilton Montgomery, Rochester, Minn.

Capt. Morris Waisman, M. C., A. U. S., read a paper on "Recurrent, Fixed Erysipelas-like Dermato-phylid."

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

WEDNESDAY, JUNE 14—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. Joseph W. Mountin, U. S. P. H. S., Washington, D. C.

On motion of Dr. Vlado A. Getting, Boston, seconded by Dr. Stanley H. Osborn, Hartford, Conn., the following resolution was adopted:

WHEREAS, The practice of and administration of public health has become a specialty within the practice of medicine for which more and more physicians are specially trained and in which they pursue lifetime careers, and

WHEREAS, The safeguarding and the improvement of the health of the people has always been a primary concern of the medical profession, and our responsibility in this field is so important that it has attracted and should continue to attract some of the ablest members of our profession; and

WHEREAS, Health officers have often devoted their lives to this field at the cost of considerable personal sacrifice, such as inadequate compensation, political interference, insecure tenure of office, lack of facilities for research or opportunities for personal advancement; and

WHEREAS, The American Medical Association has pointed out the fact that many sections of the country are without the benefit of full time trained health officers and that there is great need for more well trained physicians in this field; now therefore be it

Resolved, That (1) It is the considered opinion of this Association that full time health officers and other full time medical specialists in the public health field who have been specially trained for their highly important work should be compensated for their services in a manner comparable with the net professional income of the good surgeons or internists of the community;

(2) Adequate compensation and reasonable security in tenure of office will be necessary before physicians with proper qualifications to assume heavy responsibility of protecting and improving the health of the public will be available in sufficient number to meet the nation's existing needs.

On motion of Dr. W. W. Peter, New Haven, Conn., seconded by Dr. Gilbert G. Cottam, Pierre, S. D., the following resolution was adopted:

WHEREAS, It appears that the problem of tuberculosis control is one that is increased in time of war, and

WHEREAS, Tuberculosis is no respecter of geographic boundaries, and the problem of supervision and care of the migratory tuberculous families is becoming more acute as a result of the mass movement of populations at the present time, and may be anticipated to be even greater in the period of industrial conversion; and

WHEREAS, The number of tuberculous veterans of the armed forces is anticipated as an additional burden to the control machinery; and

WHEREAS, Existing public and private health facilities are already overtaxed; and

WHEREAS, A method of implementation and extension of the tuberculosis control work of the United States Public Health Service has been made in the form of H. R. 4615 and S. 1851 for Congressional action and appropriation, approved by the National Tuberculosis Association; and

WHEREAS, The State and Territorial Health Officers Association strongly urged the passage of such legislation; and

WHEREAS, The tuberculosis committee of the Missouri State Medical Association has approved this legislation, and the house of delegates of the Missouri Medical Association has also approved the legislation and has instructed its delegates to the American Medical Association to present these bills to the House of Delegates of the American Medical Association; and

WHEREAS, The Council of the Medical and Chirurgical Faculty of Maryland adopted a resolution endorsing H. R. 4615 and S. 1851 and urged the passage of this legislation; therefore be it

Resolved, That the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association at its annual meeting in Chicago, on June 12-16, 1944 approve Senate Bill 1851 and House of Representatives Bill 4615 and urge the Congress of the United States to enact these bills into law.

Dr. L. E. Himler, Ann Arbor, Mich., read a paper on "Psychiatric Technics in the Employment of Disabled Ex-Servicemen"

Mr. W. P. Jacobs, Clinton, S. C., read a paper on "Physical Fitness in Industry." Discussed by Dr. W. A. Sawyer, Rochester, N. Y.; Col. L. G. Rowntree, Washington, D. C., and Drs. Carl A. Wilzbach, Cincinnati; Kingsley Roberts, New York; Irving Gray, Brooklyn; Morris Raskin, Detroit, and R. B. Crain, Rochester, N. Y.

Drs. W. A. Sodeman and R. L. Pullen, New Orleans, presented a paper on "Bagasse Disease of the Lungs." Discussed by Drs. H. T. Engelhardt, New Orleans; Irving Gray, Brooklyn, and W. A. Sodeman, New Orleans.

Dr. Bruno Gebhard, Cleveland, read a paper on "Community Health Education by the Medical Profession." Discussed by Drs. W. W. Bauer, Chicago; Emery R. Hayhurst, Columbus, Ohio; Charles V. Craster, Newark, N. J.; Mr. Homer Calver, New York, and Dr. Bruno Gebhard, Cleveland.

Dr. Joseph W. Mountin, U. S. P. H. S., Washington, D. C., read the chairman's address, entitled "Relocating of Physicians as Prerequisite to Better Medical Service."

THURSDAY, JUNE 15—MORNING

On motion of Dr. Carl A. Wilzbach, Cincinnati, duly seconded, the following resolution was adopted:

WHEREAS, High ranking officials of the various branches of our armed forces have stressed the importance of physical fitness in the war effort; and

WHEREAS, The American Medical Association has endorsed the Physical Fitness Program for High Schools as sponsored by the U. S. Department of Education; and

WHEREAS, Physical fitness was emphasized again at the meeting of the Section on Preventive and Industrial Medicine and Public Health on June 14, 1944; now therefore be it

Resolved, That the Section on Preventive and Industrial Medicine and Public Health recommend to the Council on Industrial Health that it endorse and where possible assist in the efforts for providing physical fitness for all workers in industry as a means of increasing the production of war materials and for the general improvement of health; and be it further

Resolved, That the Council on Industrial Health request official approval of the American Medical Association for this action.

The following papers were read in a panel discussion on "Variations in Industrial Medical Service Plans":

Dr. James M. Adams, New York: "Stanocola Medical Care Plan."

Dr. M. S. Bloom, Binghamton, N. Y.: "Variations in Current Industrial Medical Service Plans."

Dr. Sidney R. Garfield, Oakland, Calif.: "Health Plan Principles in the Kaiser Industries"

Dr. Edward M. Jones, Johnson City, N. Y.: "Endicott-Johnson Medical Plan."

Dr. James C. McCann, Worcester, Mass.: "Medical Society Prepayment Programs: Lessons Learned from Experience in Massachusetts."

Dr. John J. Wittmer, New York: "Variations in Current Industrial Medical Service Plans."

After a question and answer period these six papers were discussed by Drs. Dean A. Clark, U. S. P. H. S., Washington, D. C.; Francis M. Pottenger, Monrovia, Calif.; Kingsley Roberts, New York; Charles V. Craster, Newark, N. J.; David A. McCoy, Boston; C. Rufus Rorem, Chicago; James C. McCann, Worcester, Mass.; James M. Adams, New York; M. S. Bloom, Binghamton, N. Y.; Sidney R. Garfield, Oakland, Calif.; Edward M. Jones, Johnson City, N. Y., and John J. Wittmer, New York.

FRIDAY, JUNE 16—MORNING

The following officers were elected: chairman, Dr. E. L. Stebbins, New York; vice chairman, Dr. C. O. Sappington, Chicago; secretary, Dr. W. A. Sawyer, Rochester, N. Y.; executive committee: Dr. Haven Emerson, New York; Dr. Joseph W. Mountin, U. S. P. H. S., Washington, D. C., and Dr. E. L. Stebbins, New York; delegate, Dr. Stanley H. Osborn, Hartford, Conn.; alternate, Dr. Leverett Dale Bristol, New York.

Dr. Arthur Massey, Coventry, England, Honor Guest, gave an address entitled "Recent Developments in British Health Service." Discussed by Drs. Gilbert G. Cottam, Pierre, S. D.; Reginald M. Atwater, New York; Carl A. Wilzbach, Cincinnati; Marshall W. Meyer, Green Bay, Wis.; Felix J. Underwood, Jackson, Miss., and Arthur Massey, Coventry, England.

Dr. Carl A. Wilzbach read a paper on "Report on Medical and Dental Examinations of 6,000 High School Boys and Girls." Discussed by Col. L. G. Rowntree, M. C., A. U. S., Washington, D. C., and Drs. R. B. Crain, Rochester, N. Y.; Emery R. Hayhurst, Columbus, Ohio; A. A. Peter, New Haven, Conn.; F. L. Rector, Lansing, Mich.; Bernard A. Schwartz, Cincinnati, and Carl A. Wilzbach, Cincinnati.

Dr. David M. Gould, U. S. P. H. S., Bethesda, Md., read a paper on "Nontuberculous Lesions Found in Mass X-Ray

Surveys." Discussed by Drs. Russell H. Morgan, Chicago; Joseph W. Mountin, U. S. P. H. S., Washington, D. C.; R. B. Crain, Rochester, N. Y.; Marshall W. Meyer, Green Bay, Wis., and David M. Gould, U. S. P. H. S., Bethesda, Md.

Drs. Haven Emerson and Reginald M. Atwater, New York, presented a paper on "National Health Based on Local Health Units." Discussed by Drs. Richard F. Boyd, Springfield, Ill.; Felix J. Underwood, Jackson, Miss.; Gilbert G. Cottam, Pierre, S. D.; James R. Scott, Santa Fe, N. M.; Joseph W. Mountin, U. S. P. H. S., Washington, D. C., and Reginald M. Atwater, New York.

SECTION ON UROLOGY

WEDNESDAY, JUNE 14—MORNING

The meeting was called to order at 9:15 by the chairman, Comdr. Gershom J. Thompson (MC), U.S.N.R.

Drs. J. Sydney Ritter and Samuel E. Kramer, New York, presented a paper on "Ureterovesical Obstruction."

Dr. Samuel A. Vest, Charlottesville, Va., read a paper on "A New Inspection Lens-Sheath as an Aid to Transurethral Resection."

These two papers were discussed by Dr. John H. Morrissey, New York.

The following papers were read as a symposium on "The Treatment of Cancer of the Prostate Gland":

Dr. William P. Herbst, Washington, D. C.: "Effects of Biochemical Therapeutics in Cancer of the Prostate Gland: Further Observation."

Drs. Gordon F. Moore, Carl A. Wattenberg and D. K. Rose, St. Louis: "Breast Changes Due to Diethylstilbestrol During Treatment of Cancer of the Prostate Gland."

Drs. John L. Emmett and Laurence F. Greene, Rochester, Minn.: "Clinical Experience with Bilateral Orchiectomy for Carcinoma of the Prostate Gland."

Dr. J. A. C. Colston, Baltimore: "Surgical Removal of Cancer of the Prostate Gland: The Radical Operation."

Drs. H. C. Bumpus Jr., Ben D. Massey and Earl F. Nation, Pasadena, Calif.: "Experiences with Orchiectomy for Carcinoma of the Prostate Gland."

These five papers were discussed by Drs. Robert H. Cummings, Ann Arbor, Mich.; Walter M. Kearns, Milwaukee; A. Elmer Belt, Los Angeles; N. G. Alcock, Iowa City; Henry K. Sangree, Philadelphia; Victor D. Lespinasse, Chicago, and William P. Herbst, Washington, D. C.

THURSDAY, JUNE 15—MORNING

The following officers were elected: chairman, Dr. Arbor D. Munger, Lincoln, Neb.; vice chairman, Lieut. Col. Lloyd G. Lewis, Washington, D. C.; secretary, Dr. Grayson L. Carroll, St. Louis.

The secretary read the report of the American Board of Urology.

Drs. Edwin L. Prien and Clifford Frondel, Boston, presented a paper on "Analysis of Urinary Calculi by Methods of Optical and X-Ray Crystallography." Discussed by Drs. Anson L. Clark, Oklahoma City, and Edwin L. Prien, Boston.

Comdr. James C. Sargent (MC), U.S.N.R., read a paper on "The Seminal Vesiculogram: An Effort at Interpretation."

Drs. M. Leopold Brodny and Samuel A. Robins, Boston, presented a paper on "Enuresis: The Use of the Urethrogram in Diagnosis."

These two papers were discussed by Drs. George H. Ewell, Madison, Wis.; Lieut. Col. Dorrin F. Rudnick, M. C., U. S. Army; R. E. Van Dusen, Dallas, Texas; Grayson L. Carroll, St. Louis; Meredith F. Campbell, New York, and M. Leopold Brodny, Boston.

Dr. Oswald S. Lowsley, New York, and Lieut. Comdr. Mark S. Curtis (MC), U.S.N.R., presented a paper on "The Surgical Aspects of Cystic Diseases of the Kidney." Discussed by Drs.

William F. Braasch, Rochester, Minn., and George R. Livermore, Memphis, Tenn.

Lieut. Col. Lloyd G. Lewis, M. C., A. U. S., read a paper on "The Urologic Treatment After Spinal Injury." Discussed by Dr. Arbor D. Munger, Lincoln, Neb.

Comdr. Gershom J. Thompson (MC), U.S.N.R., read the chairman's address, entitled "The Clinical Use of Penicillin in Genitourinary Infections."

Drs. Elmer Hess, Erie, Pa., and B. W. Wright, Nashville, Tenn., presented a paper on "Pyelocystanastomosis: Report of Two Cases." Discussed by Drs. Edgar Burns, New Orleans; B. W. Wright, Nashville, Tenn., and N. G. Alcock, Iowa City.

FRIDAY, JUNE 16—MORNING

A joint meeting was held with the Section on Obstetrics and Gynecology. The proceedings are reported in the minutes of that section.

SECTION ON ORTHOPEDIC SURGERY

WEDNESDAY, JUNE 14—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. Guy A. Caldwell, New Orleans.

Major Claude N. Lambert, M. C., A. U. S., read a paper on "Delayed Healing Time of Fractures at High Altitudes." Discussed by Col. Grover Penberthy, M. C., A. U. S.; Lieut. Col. A. R. Shands Jr., M. C., A. U. S.; Drs. D. B. Phemister, Chicago; Theodore A. Willis, Cleveland; J. Albert Key, St. Louis, and H. D. Corbusier, New Mexico, and Major Claude N. Lambert, M. C., A. U. S.

Major James J. Callahan, M. C., A. U. S., read a paper on "Revascularization of Carpal Bones." Discussed by Drs. Kellogg Speed, Chicago; D. B. Phemister, Chicago, and Major James J. Callahan.

The following were appointed as a nominating committee: Drs. J. E. M. Thomson, Lincoln, Neb., chairman; Harold B. Boyd, Memphis, Tenn., and Walter G. Stuck, San Antonio, Texas.

Dr. Roy I. Peck, Philadelphia, read a paper on "Treatment of Skeletal Metastases in Prostatic Carcinoma." Discussed by Drs. J. Albert Key, St. Louis; Elmer Hess, Erie, Pa., and Roy I. Peck, Philadelphia.

Dr. G. Edmund Haggart, Boston, read a paper on "Degenerative Arthritis of the Hip Joint Treated by One and Two Stage Arthrodesis with Metal Fixation." Discussed by Drs. David M. Bosworth, New York; Herman C. Schumm, Milwaukee; J. Warren White, Greenville, S. C.; Walter P. Blount, Milwaukee, and G. Edmund Haggart, Boston.

Dr. James Archer O'Reilly, St. Louis, gave a report from the House of Delegates.

Drs. W. H. Bickel, Rochester, Minn., and J. J. Hinchey, St. Paul, presented a paper on "One Stage Combined Rib Resection and Spinal Fusion for Severe Scoliosis." Discussed by Drs. Edward L. Compere, Chicago; Daniel H. Levinthal, Chicago, and W. H. Bickel, Rochester, Minn.

Dr. Harold B. Boyd, Memphis, Tenn., read a paper on "Fractures of the Elbow in Children." Discussed by Drs. John Dunlop, Pasadena, Calif.; J. Warren White, Greenville, S. C.; Walter P. Blount, Milwaukee, and Harold B. Boyd, Memphis.

THURSDAY, JUNE 15—MORNING

Drs. J. Warren White and Sam G. Stubbins, Greenville, S. C., read a paper on "Growth Arrest for Equalizing Leg Lengths." Discussed by Drs. Sylvan L. Haas, San Francisco; C. Howard Hatcher, Chicago, and J. Warren White, Greenville, S. C.

Dr. Guy A. Caldwell, New Orleans, read the chairman's address, entitled "The Postwar Challenge to Orthopedic Surgery."

Dr. Eben J. Carey, Milwaukee, read a paper on "The Pathology of Motor End Plates in Skeletal Muscle, with Special Emphasis on Poliomyelitis."

Dr. Ralph K. Ghormley, Rochester, Minn., presented a report for the Committee for Investigation of Kenny Treatment of Poliomyelitis. Supplemental reports were presented by Drs. J. Albert Key, St. Louis, and Edward L. Compere, Chicago.

Surg. Gen. Norman T. Kirk addressed the section.

The following officers were elected: chairman, Dr. Theodore A. Willis, Cleveland; vice chairman, Lieut. Col. Francis M. McKeever, M. C., A. U. S., Los Angeles; secretary, Dr. J. Warren White, Greenville, S. C.; executive committee: Dr. J. A. Dickson, Cleveland, Dr. Guy A. Caldwell, New Orleans, and Dr. Theodore A. Willis, Cleveland; delegate, Dr. James Archer O'Reilly, St. Louis; alternate, Dr. Herman C. Schumm, Milwaukee; members of Board of Examiners of Orthopedic Surgery: Dr. Robert D. Schrock, Omaha, and Dr. G. Edmund Haggart, Boston.

Dr. Harrison L. McLaughlin, New York, read a paper on "Lesions of the Musculotendinous Cuff of the Shoulder: Differential Diagnosis of Rupture." Discussed by Drs. James E. M. Thomson, Lincoln, Neb.; Edwin W. Ryerson, Chicago, and Harrison L. McLaughlin, New York.

Dr. William T. Green, Boston, read a paper on "Slipping of the Upper Femoral Epiphysis: Diagnostic and Therapeutic Considerations." Discussed by Drs. Fremont A. Chandler, Chicago; Walter P. Blount, Milwaukee; J. Warren White, Greenville, S. C., and William T. Green, Boston.

FRIDAY, JUNE 16—MORNING

A joint meeting was held with the Section on Radiology.

Major Gilbert W. Heublein, M. C., A. U. S., read a paper on "X-Ray Considerations of Traumatic Lesions of the Cervical Spine."

Dr. Arthur G. Davis, Erie, Pa., read a paper on "The Clinical Diagnosis, Treatment and Prognosis of Traumatic Lesions of the Cervical Spine." Discussed by Drs. John Dunlop, Pasadena, Calif.; R. K. Ghormley, Rochester, Minn., and Frank R. Ober, Boston.

Dr. Howard P. Doub, Detroit, read a paper on "Roentgen Studies of Aseptic Necrosis of the Epiphyses and Short Bones."

Dr. Wallace H. Cole, St. Paul, read a paper on "The Clinical Diagnosis, Treatment and Prognosis of Epiphyseal Disturbances in Childhood." Discussed by Drs. Frank R. Ober, Boston; W. Edward Chamberlain, Philadelphia, and D. B. Phemister, Chicago.

Dr. John W. Pierson, Baltimore, and Lieut. Comdr. John F. Roach (MC), U.S.N., presented a paper entitled "The Roentgenology of Osteomyelitis."

Dr. Frank D. Dickson, Kansas City, Mo., read a paper on "The Clinical Diagnosis, Treatment and Prognosis of Acute Hematogenous Osteomyelitis." Discussed by Drs. E. E. Mansur, Jefferson City, Mo., and Carl Badgley, Ann Arbor, Mich.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

WEDNESDAY, JUNE 14—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Emmett H. Terrell, Richmond, Va.

Drs. Lester M. Morrison and Ernest A. Spiegel, Philadelphia, presented a paper on "Demonstration of Visceral Pain by Determination of Skin Potentials." Discussed by Drs. Francis M. Pottenger, Monrovia, Calif.; Jose Mendez Feros, Havana, Cuba, and Lester M. Morrison, Philadelphia.

Dr. Frank C. Yeomans, New York, read a paper on "Sigmoidoscopy in Diagnosis and Treatment." Discussed by Drs. Descum C. McKenney, Buffalo; C. C. Tucker, Wichita, Kan., and Frank C. Yeomans, New York.

Dr. Frank W. Hartman, Detroit, read a paper on "Curling's Ulcer in Experimental Burns." Discussed by Drs. T. E. Bratrud, Minneapolis, and Frank W. Hartman, Detroit.

Drs. Russell S. Boles, Helena E. Riggs and John G. Reinhold, Philadelphia, presented a paper on "Observations on the Chemical Composition of the Blood and on Some Cardiovascular Reactions in Chronic Peptic Ulcer Throughout One Year." Discussed by Drs. Heinrich Necheles, Chicago, and Russell S. Boles, Philadelphia.

Dr. Everett N. Collins, Cleveland, read a paper on "The Use of Aluminum Hydroxide and Other Nonabsorbable Antacids in the Treatment of Peptic Ulcer." Discussed by Drs. James Flexner, New York; Walter L. Palmer, Chicago, and Everett N. Collins, Cleveland.

Dr. Benjamin M. Bernstein, Brooklyn, read a paper on "Gastroduodenal Dyssynergia." Discussed by Drs. Walter C. Alvarez, Rochester, Minn.; Walter L. Palmer, Chicago; Sara M. Jordan, Boston, and Benjamin M. Bernstein, Brooklyn.

Drs. Martin G. Vorhaus and S. Zachary Orgel, New York, presented a paper on "Psychosomatic Factors in Gastrointestinal Disorders." Discussed by Drs. Franz G. Alexander, Chicago; Sidney A. Portis, Chicago; Benjamin M. Bernstein, Brooklyn; George B. Eustermann, Rochester, Minn., and S. Zachary Orgel, New York.

Dr. Henry A. Rafsky, New York, read a paper on "Medical War Problems Confronting the Civilian Physician Today." Discussed by Major Jerome S. Levy, M. C., A. U. S.; Capt. J. Edward Berk, M. C., A. U. S., Utica, N. Y., and Henry A. Rafsky, New York.

THURSDAY, JUNE 15—AFTERNOON

The following officers were elected: chairman, Dr. J. Arnold Bagen, Rochester, Minn.; vice chairman, Dr. Martin S. Kleckner, Allentown, Pa.; secretary, Dr. Sara M. Jordan, Boston; executive committee: Dr. Walter L. Palmer, Chicago; Dr. Emmett H. Terrell, Richmond, Va., and Dr. J. Arnold Bagen, Rochester, Minn.; delegate, Dr. Louis A. Buie, Rochester, Minn.; alternate, Dr. Walter L. Palmer, Chicago; chairman of scientific exhibit, Dr. Grant H. Laing, Chicago; member certifying committee, Board of Proctology, Dr. Frank C. Yeomans, New York.

Dr. Emmett H. Terrell, Richmond, Va., read the chairman's address, entitled "Present Day Proctology."

Dr. Paul C. Blaisdell, Pasadena, Calif., read a paper on "Traumatic Injuries of the Rectum." Discussed by Drs. Malcolm R. Hill, Los Angeles, and Paul C. Blaisdell, Pasadena, Calif.

Dr. Curtice Rosser, Dallas, Texas, read a paper on "Benign Surgical Lesions of the Right Colon." Discussed by Dr. Walter A. Fansler, Minneapolis.

Drs. W. Wayne Babcock and Harry E. Bacon, Philadelphia, presented a paper on "Complications in the Operative Treatment of Cancer of the Colon."

Dr. Moses Behrend, Philadelphia, read a paper on "Colon Surgery and the Sulfonamide Drugs, with Especial Reference to the Elimination of the Mikulicz Operation."

Dr. Edward G. Martin, Detroit, read a paper on "Resistance: The Function of the Colon." Discussed by Dr. Joseph Felsen, New York.

Dr. Paul B. Welch, Miami, Fla., read a paper on "Distortions of the Gastric Feeding Reflex Associated with Extragastric Pathology: Their Clinical Significance." Discussed by Drs. Morton J. Oppenheimer, Philadelphia, and Paul B. Welch, Miami, Fla.

Dr. Everett D. Kiefer, Boston, read a paper on "Criteria in the Management of Chronic Ileitis." Discussed by Drs. J. Arnold Bagen, Rochester, Minn.; Henry A. Rafsky, New York, and Everett D. Kiefer, Boston.

Drs. Harry L. Segal and W. J. Merle Scott, Rochester, N. Y., presented a paper on "Small Intestinal Lesions Producing Mas-

sive Hemorrhage and Symptoms Simulating Peptic Ulcer." Discussed by Drs. T. E. Jones, Cleveland, and Stockton Kimball, Buffalo.

Drs. Daniel N. Silverman and Alan N. Leslie, New Orleans, presented a paper on "Intractable Amebic Colitis." Discussed by Drs. Walter L. Palmer, Chicago; M. G. Spiesman, Chicago, and Daniel N. Silverman, New Orleans.

Dr. Joseph Felsen, New York, read a paper on "Bacillary Dysentery in War." Discussed by Drs. Herman M. Pollard, Ann Arbor, Mich.; Daniel N. Silverman, New Orleans, and Joseph Felsen, New York.

FRIDAY, JUNE 16—AFTERNOON

A joint meeting was held with the Section on Surgery, General and Abdominal.

Dr. A. H. Aaron, Buffalo, read a paper on "Inflammatory Lesions of the Stomach and Duodenum: Medical Aspect."

Dr. Frank H. Lahey, Boston, read a paper on "Inflammatory Lesions of the Stomach and Duodenum: Surgical Aspect."

These two papers were discussed by Drs. Albert F. R. Andresen, Brooklyn; Marie Ortmayer, Chicago; Henry A. Rafsky, New York; Sara M. Jordan, Boston; A. H. Aaron, Buffalo, and Frank H. Lahey, Boston.

Dr. Henry L. Bockus, Philadelphia, read a paper on "Inflammatory Lesions of the Small Intestine: Medical Aspect."

Dr. Henry W. Cave, New York, read a paper on "Inflammatory Lesions of the Small Intestine: Surgical Aspect."

These two papers were discussed by Drs. Burrill B. Crohn, New York; Marie Ortmayer, Chicago, and Henry W. Cave, New York.

Dr. J. Arnold Barger, Rochester, Minn., read a paper on "Inflammatory Lesions of the Colon: Medical Aspect."

Dr. Thomas E. Jones, Cleveland, read a paper on "Inflammatory Lesions of the Colon: Surgical Aspect."

These two papers were discussed by Drs. Donovan C. Browne, New Orleans; Raymond W. McNealy, Chicago; M. H. Streicher, Chicago; J. Arnold Barger, Rochester, Minn., and Thomas E. Jones, Cleveland.

SECTION ON RADIOLOGY

WEDNESDAY, JUNE 14—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Robert A. Arens, Chicago.

Drs. Frederick E. Templeton and Paul M. Moore, Cleveland, presented a paper on "Cardiospasm: A Roentgenologic Study of Muscular Action." Discussed by Dr. A. M. Olsen, Rochester, Minn.

Drs. Leo G. Rigler and Henry S. Kaplan, Minneapolis, and Capt. Daniel L. Fink, M. C., A. U. S., presented a paper on "Pernicious Anemia and Tumors of the Stomach." Discussed by Drs. Harry Weber, Rochester, Minn.; Paul Swenson, Philadelphia, and Peter Casellas, San Juan, Puerto Rico.

Drs. Arthur P. Eichternacht and John Alexander Campbell, Indianapolis, presented a paper on "The Value of Scout Films of the Abdomen." Discussed by Dr. Leroy Sante, St. Louis.

Dr. Hugh F. Hare, Boston, read a paper on "Osteitis Condensans Ilii."

Capt. Charles F. Berens (MC), U.S.N.R., read a paper on "Some Radiologic Considerations of Upper Extremity Pain."

THURSDAY, JUNE 15—AFTERNOON

The chairman announced the death of the secretary of the section, Dr. John T. Murphy of Toledo, that morning, and the members arose and stood in silent tribute to his memory.

The following officers were elected: chairman, Dr. Edwin C. Ernst, St. Louis; vice chairman, Dr. Bernard P. Widmann, Philadelphia; secretary, Dr. U. V. Portmann, Cleveland; delegate, Dr. B. R. Kirkland, Rochester, Minn.; alternate, Dr.

Eugene Pendergrass, Philadelphia; delegate to the American Board of Radiology, Dr. John W. Pierson, Baltimore.

Dr. Robert A. Arens, Chicago, read the chairman's address, entitled "Radiologic Aspects of the Urologic Problem."

Drs. Harry H. Bowing and Robert E. Fricke, Rochester, Minn., read a paper on "Urinary Complications in Cases of Carcinoma of the Uterine Cervix: Management and Prognosis." Discussed by Dr. Edward Earl Mansur, Jefferson City, Mo.

Dr. C. D. Selby, Detroit, read a paper on "Industry's Attitude Toward X-Ray Examination of the Chest." Discussed by Col. A. J. Lanza, M. C., A. U. S.

Drs. Eugene P. Pendergrass and Simon S. Leopold, Philadelphia, presented a paper on "Benign Pneumonoconiosis." Discussed by Col. A. J. Lanza, M. C., A. U. S.; Dr. I. S. Trostler, Chicago, and Dr. Norbert Enzer, Milwaukee.

Dr. Richard E. Kinzer, M. C., A. U. S., read a paper on "An Analysis of Disqualifying Conditions Found During the Chest X-Ray Examination of 105,141 Selectees." Discussed by Drs. Robert G. Bloch, Chicago, and Capt. H. J. Prichard, Chicago.

FRIDAY, JUNE 16—MORNING

A joint meeting was held with the Section on Orthopedic Surgery. The proceedings are reported in the minutes of that section.

SECTION ON ANESTHESIOLOGY

WEDNESDAY, JUNE 14—MORNING

The meeting was called to order at 9:15 by the chairman, Dr. Paul M. Wood, New York.

Dr. Henry S. Ruth, Merion Station, Pa., read a paper on "Anesthesia Study Commissions." Discussed by Drs. Frederick P. Haugen, Philadelphia, and Roland J. Whitacre, East Cleveland, Ohio.

Dr. Urban H. Eversole, Boston, read a paper on "Why Use Spinal Anesthesia?"

Dr. Edward B. Tuohy, M. C., A. U. S., read a paper on "Continuous Spinal Anesthesia: Its Usefulness and the Technic Involved."

These two papers were discussed by Drs. William T. Lemmon, Philadelphia, and Capt. Floyd T. Romberger, M. C., A. U. S.

Dr. Harold R. Griffith, Montreal, read a paper on "Curare." Discussed by Drs. Stuart C. Cullen, Iowa City, and J. W. Baird, Minneapolis.

WEDNESDAY, JUNE 14—MORNING

Business Session

The secretary, Dr. John S. Lundy, Rochester, Minn., read a letter from Dr. L. H. Bauer, chairman of the Council on Medical Service and Public Relations, and a letter from Dr. James R. Miller, Hartford, Conn., addressed to Dr. Bauer, regarding the demand from the public that charges for diagnostic x-ray examinations be combined in the total hospital bill along with charges for anesthesiology and laboratory services. The matter was referred to the executive committee, which prepared instructions for the delegate to the House:

1. It is the opinion of the committee, confirmed by the section, that anesthesiology is the practice of medicine; that medical practice is distinct from hospital service and must so remain.
2. It is the opinion of this body that services rendered patients by medical anesthesiologists, regardless of economic arrangement, is one of responsibility and has and always must maintain close personal relationship of patient and physician.

It was moved, seconded and unanimously carried to accept these instructions to the delegate to the House.

Dr. Henry S. Ruth, Merion Station, Pa., the representative of the section in the House of Delegates, reported on a resolution presented at the meeting of the House, recommending that the American Medical Association commend and encourage 1944 as the centenary year of Horace Wells's first application of

nitrous oxide as an agent for inhalation of anesthesia. After considerable discussion as to the wording of the resolution, it was unanimously moved to lay the resolution on the table until the meeting of the section on the following morning, to permit the wording of the resolution to meet the approval of the section. It was agreed that Dr. Curtis B. Hickox, Hartford, Conn., would reword the resolution.

Major Harold Bishop, Washington, D. C., offered a resolution that a representative of the section be appointed to present the matter of anesthesia study commissions and their importance to the executive committee of the American Medical Association with a view to possible adoption in its educational program so that it could be put on a national scale.

Dr. Walters asked Major Bishop to change the motion to the effect that the chairman be asked to appoint a committee of three to consider this matter and present it at the next business session. Major Bishop accepted the change, and the motion was seconded and carried. Major Bishop, Dr. Haugen and Dr. Whitacre were appointed to meet with the executive committee concerning this resolution.

THURSDAY, JUNE 15—MORNING

The following officers were elected: chairman, Dr. Ansel M. Caine, New Orleans; vice chairman, Dr. Harold C. Kelley, New York; secretary, Dr. John S. Lundy, Rochester, Minn.; delegate, Dr. Henry S. Ruth, Philadelphia; alternate, Dr. H. Boyd Stewart, Tulsa, Okla.

Major Harold Bishop reported for the committee of three on the matter of anesthesia study commissions appointed at the preceding meeting (resolution taken by Dr. Ruth for presentation to the House of Delegates).

Dr. Lundy read the letter drafted in reply to Dr. L. H. Bauer:

Your letter with enclosure to Dr. John S. Lundy, secretary of the Section on Anesthesiology, under date of Jan. 20, 1944, has been considered by the executive committee of the section.

The committee, after due deliberation, concurs in the following reply.

1. We feel that the proper practice of anesthesiology involves personal relationship between physicians and patients no less intimate than that enjoyed by a majority of medical practitioners.

2. Past experience indicates that the destruction of such personal relationship tends to jeopardize the best professional service to patients.

3. Evidence tends to show that the employment of anesthesiologists by hospitals on a salary basis rarely remains a fair and equitable plan. It seldom serves to encourage superior professional ability or to promote improvement in professional attainment.

It would therefore be our opinion that the resolution adopted by the House of Delegates in 1943 (June 8, 1943, published in *THE JOURNAL*, June 26, 1943, p. 619) expresses a proper attitude which ought to be maintained.

The redrafted resolution concerning the Horace Wells centenary year was read and ordered placed in the minutes, as follows:

WHEREAS, It has been well established that Horace Wells of Hartford, Conn., was one of the first to suggest a practical method of rendering the human body insensible during surgical operations;

WHEREAS, He was the first to show that nitrous oxide could be used as an anesthetic agent and himself used nitrous oxide in many operations;

WHEREAS, He at once made known his discovery to members of the medical and dental profession in Hartford and elsewhere, showing thereby a commendable desire to make known to others the knowledge of his great discovery; therefore be it

Resolved, That, since 1944 marks the centenary of the discovery by Horace Wells, this society believes this is an appropriate time to honor his memory.

The resolution was accepted by unanimous vote.

Dr. Paul M. Wood, New York, read the chairman's address, entitled "Some Aims of an Anesthesiologist."

Dr. Robert A. Hingson, P. A. Surgeon, U. S. P. H. S., read a paper entitled "Continuous Caudal Analgesia: A Technic in Therapeutics, Surgery and Obstetrics." Discussed by Drs. John G. P. Cleland, Oregon City, Ore., and H. Close Hesseltine, Chicago.

Dr. John Adriana, New Orleans, read a paper on "The Effect of Moisture on the Absorption Efficiency of Soda Lime." Discussed by Dr. James H. Bennett, Cincinnati, and Capt. Ralph Sappenfield, M. C., A. U. S.

Dr. R. Charles Adams, Rochester, Minn., read a paper entitled "Intravenous Anesthesia." Discussed by Drs. Alice McNeal, Chicago; Robert A. Hingson, U. S. P. H. S.; S. A. Swenson, Rushville, Neb.; H. A. Cunningham, Milwaukee; K. C. McCarthy, Louisville, Ky.; Herman Lenowitz, Maywood, Ill., and Stuart C. Cullen, Iowa City.

Dr. E. A. Rovenstine, New York, read a paper on "Therapeutic and Diagnostic Nerve Blocking." Discussed by Drs. H. O. Brown, Chicago, and Major Harold Bishop, Washington, D. C.

FRIDAY, JUNE 16—MORNING

A joint meeting was held with the Section on Nervous and Mental Diseases. The proceedings are reported in the minutes of that section.

SECTION ON MISCELLANEOUS TOPICS

Sessions for the General Practitioner

WEDNESDAY, JUNE 14—MORNING

The meeting was called to order at 9:10 by the chairman, Dr. J. Craig Bowman, Upper Sandusky, Ohio.

Dr. J. Craig Bowman, Upper Sandusky, Ohio, read the chairman's address, entitled "The Role of the General Practitioner."

Dr. Sidney A. Portis, Chicago, read a paper on "The Medical Treatment of Psychosomatic Disturbances, with Special Reference to the Gastrointestinal Tract and Fatigue." Discussed by Col. Leonard G. Rowntree, M. C., A. U. S., and Drs. Hobart A. Reimann, Philadelphia, and Dr. Sidney A. Portis, Chicago.

Dr. M. A. Blankenhorn, Cincinnati, read a paper on "The Newer Sulfonamides." Discussed by Drs. Lawrence D. Thompson, St. Louis; S. L. Bernstein, Cleveland; David Lehr, New York, and M. A. Blankenhorn, Cincinnati.

Dr. Wallace E. Herrell, Rochester, Minn., read a paper on "Penicillin Therapy: Its Use and Limitation." Discussed by Drs. Walter S. Priest, Chicago; K. R. Brown, Des Moines, Iowa; W. M. Johnson, Winston-Salem, N. C., and Dr. Wallace E. Herrell, Rochester, Minn.

Dr. John A. Toomey, Cleveland, read a paper on "Chief Complaint: Stiff Neck." Discussed by Drs. Archibald L. Hoyne, Chicago; Gilbert J. Levy, Memphis, Tenn., and John A. Toomey, Cleveland.

Dr. Royal M. Montgomery, New York, read a paper on "Cutaneous Manifestations of the Fungi Causing Dermatophytosis and Onychomycosis and Their Treatment." Discussed by Drs. John H. Lamb, Oklahoma City, Arthur C. Curtis, Ann Arbor, Mich., and Royal M. Montgomery, New York.

THURSDAY, JUNE 15—MORNING

Dr. William Earl Clark, Washington, D. C., read a paper on "Gastrointestinal Conditions Simulating or Aggravating Cardiovascular Diseases." Discussed by Drs. Sara M. Jordan, Boston, and William Earl Clark, Washington, D. C.

Lieut. Col. William J. Carrington, M. C., A. U. S., read a paper on "Diagnosis of Acute Surgical Diseases of the Female Pelvis and Lower Abdomen."

Lieut. Col. Thomas T. Mackie, M. C., A. U. S., read a paper on "The Dysenteries: Acute and Chronic." Discussed by Dr. George T. Harrell Jr., Winston-Salem, N. C.; Capt. William C. Bernstein, M. C., A. U. S., and Lieut. Col. Thomas T. Mackie, M. C., A. U. S.

Dr. August A. Werner, St. Louis, read a paper on "The Male Climacteric." Discussed by Drs. Charles W. Dunn, Philadelphia; Benjamin F. Sieve, Boston, and August A. Werner, St. Louis.

Dr. E. J. Teeter, Indianapolis, read a paper on "Anemia Therapy: Review of Various Liver and Stomach Fractions and Iron Salts." Discussed by Drs. Francis D. Murphy, Milwaukee; Raphael Isaacs, Chicago, and E. J. Teeter, Indianapolis.

OFFICIAL NOTES

COMMITTEE ON POSTWAR MEDICAL SERVICE

Meeting Held in the Palmer House, Chicago,
June 14, 1944

Members and guests present

Dr Roger I Lee	Lieut Col Richard L Weidung
Dr H H Shoulders	Dr E E Irons
Dr Frederick A Collier	Dr E R Loveland
Dr Willard C Rappleye	Brig Gen Fred W Rankin
Dr Graham G Davis	Major Gen N T Kirk
Dr Victor Johnson	Major Gen George Lull
Lieut Col Gerard R Gessner	C Willard Camahner, DDS
Lieut Col George Powell	Dr Arthur W Allen
Lieut Col Harold C Lueth	Dr Irvin Abell
Dr Francis G Bluke	Dr Harvey Stone
Capt W Baker	Dr Walter L Bierring
Dr James E Paulin	Dr Olin West
Miss Mary E Switzer	Vice Admiral Ross T McIntire
Dr Morris Fishbein	Capt William Eaton
Rev Alphonse Schwitalla	

In the absence of the secretary of the committee, the chairman requested Dr H H Shoulders to serve as temporary secretary

The chairman announced the presence of new members of the committee Mr Graham Davis, representing the American Hospital Association, and Rev Alphonse Schwitalla, SJ, representing the Catholic Hospital Association

REPORT OF ACTION TAKEN BY THE HOUSE OF DELEGATES

The chairman at this point read a statement of the action taken by the House of Delegates of the American Medical Association on the report to the House by Dr Roger I Lee, chairman of the committee. The action was entirely favorable to the activities of the committee and to its continuance in service

LEGISLATION AFFECTING VETERANS

The next question raised was the status of current legislation affecting the educational privileges and financial aids of veterans of this war. Particular reference was made to the status of the bill referred to as the G I bill

It was recommended that Mr J W Holloway of the Bureau of Legal Medicine and Legislation of the American Medical Association make an analysis of all current national legislation concerned with educational privileges and financial aid to veterans of this war and submit his analysis to the members of this committee

ANALYSIS OF PILOT QUESTIONNAIRE

An analysis of 927 returned pilot questionnaires was presented by Lieutenant Colonel Lueth. This report will appear in an early issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. The large number of returned questionnaires (31 per cent) indicates a genuine interest among medical officers in active postwar planning. Medical officers particularly young medical officers, are greatly interested in the creation of immediate postwar educational training programs

PUBLICITY OF COMMITTEE ACTIVITIES

A motion was made by Miss Mary E Switzer and seconded by Dr Paulin that publicity be given to this analysis better to acquaint medical officers in the field, as well as practitioners at home, with the detailed groundwork that has been done incident to the formulation of sound postwar policies. It was further pointed out that an explanation of the purpose of the questionnaire to the doctors would facilitate a better return of the final questionnaire soon to be sent to each medical officer. The motion was put to a vote and carried

REVISED QUESTIONNAIRE

As a result of the returned pilot questionnaires, certain revisions appeared desirable. At the last meeting of the Committee on Postwar Medical Service a committee composed of Dr Abell, Dr West, Dr Irons and Lieutenant Colonel Lueth was empowered to make such revisions in the final questionnaire as appear necessary. The revised questionnaire was presented and the committee was informed that the questionnaires are printed and are shortly to be distributed to the Army, Navy and Public Health Service for early mailing to medical officers

PLANS AND FACILITIES FOR POSTGRADUATE TRAINING

Dr Victor Johnson, Secretary of the Council on Medical Education and Hospitals of the American Medical Association reported progress on the study of available facilities for postgraduate training in the form of residencies, internships, short courses, and so on, that will be available for medical men immediately after the cessation of hostilities. In particular it was recommended that the Council on Medical Education and Hospitals be given authority to explore the possibilities of the developments of a six to eight weeks course for a small number of medical officers who are about to be discharged from the armed services. The plan was discussed by Dr Abell, Dr Stone, Dr Rappleye, Father Schwitalla and Lieutenant Colonel Lueth. General Kirk and Vice Admiral McIntire were requested to express an opinion on the feasibility of such plans. While they were in accord with the formation of short refresher courses, they pointed out certain limitations and indicated that such plans could not be put into operation in the immediate future because of the enlarging demands of both services for medical personnel, which needs have not been completely satisfied at present

After full and free discussion, Dr Abell moved that the Council on Medical Education and Hospitals be requested to work out a program for such a course in postgraduate training as an experiment. This was put to a vote and carried. Vice Admiral McIntire agreed to supply the Council with a list of naval officers now in various medical institutions for training

BUREAU OF INFORMATION

Dr Irons, chairman of the subcommittee, reported that the Board of Trustees and the House of Delegates of the American Medical Association have taken action to create a Bureau of Information to be established at 535 North Dearborn Street, Chicago 10, Illinois and to make its facilities available to all who may be interested. This bureau was created primarily to serve as an information service to discharged veterans and to institutions and localities for their mutual benefit in facilitating the placement of personnel. The new agency is in no sense to serve as an employment agency, and to this end the Information Bureau will be in operation only during the peak of demobilization

DISPOSITION OF EXCESS MEDICAL SUPPLIES AND EQUIPMENT

The next question concerned the matter of disposition of government owned medical supplies and equipment currently on hand in warehouses as excess material. In particular, reference was made to equipment and supplies no longer needed by the Office of Civilian Defense. It was reported that the large stores of supplies and equipment might deteriorate in storage if not used, consequently they might be put to practical use if satisfactory plans for disposition could be arranged. It was pointed out that certain governmental agencies are vitally concerned with the program and would welcome the advice and assistance of the committee

It was moved by Dr H H Shoulders and seconded by Dr Arthur W Allen that Chairman Lee be authorized to appoint a subcommittee to explore this question and report back to the committee at its next meeting. This motion was put to a vote and carried

During the discussion of the uses of excess medical equipment and supplies it was suggested that means of ascertaining the effects of deterioration and contamination should be carefully considered by the subcommittee

Capt William Eaton, U S N, recommended that a medical officer representative of the governmental services be made ex officio a member of the Committee on Supplies and Equipment. In view of the complexity and gravity of the problems of distribution of excess medical supplies, the chairman asked that he be given sufficient time during which to consider the appointment of members of the committee

FACILITATING MEDICAL LICENSURE

Dr Walter Bierring offered the facilities of the Federal and State Boards of Medical Examiners in working out problems concerned with the licensure of returning veterans

There being no further business, the Committee adjourned to meet in New York City at a time to be fixed by the chairman. The chairman appointed W W Palmer, E F Irons and Father Schwitalla, Morris Fishbein and M E Switzer as a subcommittee on Excess Medical and Hospital Supplies

WASHINGTON LETTER

(From a Special Correspondent)

June 26, 1944.

Maternity Care

Doctors in the District of Columbia, now paid a flat \$50 fee for maternity care of servicemen's wives, will get additional fees effective July 1 from the government when necessary treatment of intercurrent conditions requires repeated professional calls at home or hospital, officials of the maternity and child welfare section of the District of Columbia Health Department disclose.

This liberalization of maternity care payments is expected to eliminate one of several dissatisfactions of doctors and patients which has limited effectiveness of the plan intended by Congress to aid the wives of lowest paid soldiers and sailors in the fourth, fifth, sixth and seventh pay grades.

Altogether 254 Washington doctors are accepting patients under the plan; so far as service wife-and-child patients are concerned, the arrangement is much more liberal than it sounds.

Some Washington obstetricians limit the number they will accept to 2 a month or 3 a month; one doctor has 71 service maternity patients under the plan, another 30, and the majority under 10 each.

No limit is fixed on hospital care; the mother stays as long as she needs hospitalization, and the health department pays her bill on the basis of hospital contracts negotiated with cooperating institutions—Columbia, Freedmen's, Gallinger, Garfield, Georgetown, George Washington, National Homeopathic, Providence and Sibley.

Marriage Regulations

Another effort has been made to bring District of Columbia marriage regulations into line with the thirty states which require compulsory medical examination of all applicants for marriage licenses. The bill, presented to the House by Chairman Jennings Randolph (Democrat, West Virginia) of the House Committee on the District of Columbia would require examination for syphilis, gonorrhea and tuberculosis. An iden-

tical measure was introduced in 1941 at the request of the District commissioners, but no action was taken on it. Neighboring Maryland also lacks premarital regulations, but Virginia enforces them.

The bill stipulates that applicants for marriage licenses must submit a physician's certificate stating that serologic or other recognized laboratory procedure had been undertaken within thirty days of making the application. Tests would be made without charge by the district health department. Penalty of \$500 fine or up to six months' imprisonment or both is provided for violations.

District health officials are in favor of legislation to require antepartum examination to protect babies against syphilis, but this is not included in the bill. Neither Maryland nor Virginia has such a law.

Shortage of Nurses

Washington hospitals are finding a partial answer to the acute shortage of nurses in the use of hospital men volunteers, joint project of the Office of Civilian Defense and the American Hospital Association. Doctors Hospital has signed 45 men for volunteer nurse duty, among them civil service workers, businessmen, accountants, lawyers and clerks. Welcomed by Dr. Edgar Bocock, Doctors Hospital administrator, they began work on four hour shifts, assigned to floor duty as orderlies. Dr. Bocock outlined a plan for appealing to other volunteers in kitchen, housekeeping and clerical work.

Hospital men volunteers are also being enrolled at Emergency and Garfield Hospitals, with other hospitals here to put the program into effect later.

After collapse of a plan to get services of conscientious objectors through Selective Service, Dr. George C. Ruhland, District of Columbia health officer, tried to obtain paroled jail prisoners to meet personnel needs at Glenn Dale Sanatorium and Gallinger Municipal Hospital. He has written to James V. Bennett, director of the Federal Bureau of Prisons to learn if prisoners could be detailed or paroled to the District institutions. Housing and food would be furnished workers, and the city might offer some pay if permitted.

MEDICAL ECONOMIC ABSTRACTS

NEW HAMPSHIRE PREPAYMENT PLAN

The New Hampshire Physician Service has begun operation in cooperation with the New Hampshire-Vermont Hospitalization Service. Joint contracts are issued at a monthly cost to the subscriber of \$2.25 for an individual and \$5.25 for the family, covering hospitalization, surgical service and medical service. Of the payments from the individual 75 cents is assigned to each of the three types of service, and the family contributions are also distributed giving \$1.75 for each class of service.

The Blue Cross New Hampshire-Vermont Hospitalization Service administers the hospital section, while the Surgical and Medical Indemnity Services are in a separate division under the direction of the New Hampshire Medical Service. The governing power is vested in the "voting members," of which at least one half must be members of the New Hampshire Medical Society. The "voting members" choose the board of directors, "at least a majority of whom shall be approved by the house of delegates of the New Hampshire Medical Society, and one of whom shall be the president of the New Hampshire Hospitalization Service." The board of directors is to choose from its own membership a "professional committee," which "shall have supervision over the medical aspects of all matters relating to (a) the standards of medical care provided subscribers, (b) the qualifications of participating physicians, (c) the admission, suspension or disciplining of participating physicians, (d) the amount of credits allowed for service not specifically specified in the schedule of benefits and (e) any matters in dispute between the subscriber and the participating physician, or between the corporation and the participating physician."

The payments to physicians for services are on the indemnity plan and do not prevent additional charges. The first two visits are deductible, and paid for by the subscriber, and only twenty-five visits will be paid for during a single year. Contracts for medical services are granted only to those having surgical contracts.

REPORT OF THE NEW JERSEY PLAN

The Medical-Surgical Plan of New Jersey submitted a supplementary report to the House of Delegates of the Medical Society of New Jersey which gives the results of twenty-one months of operation ended March 31, 1944. From this report the following is taken:

As of March 31 there were 20,460 persons enrolled in the plan.

The plan has received from its subscribers \$120,884.69 and has paid \$71,226.75, or 58.9 per cent, of this income to physicians for medical and surgical services rendered its subscribers and dependents.

From its earned income it has paid all administrative costs, all eligible claims in accordance with its predetermined schedule of benefits and placed \$19,850.33, or 16.4 per cent, of its earned income in reserve. In addition it retains intact the \$5,000 capital fund donated by the Medical Society of New Jersey.

The state legislature passed a bill on April 13, 1944 permitting an expansion of the plan under certain conditions to include patients not hospitalized.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

Major Greene Returns as Director of Laboratories.—Major Robert A. Greene, U. S. Army Chemical Warfare Service, who received an honorable discharge May 8, has rejoined the state department of health as director of laboratories, a position he had held for six years prior to his military leave. Mildred T. Wooley, D.P.H., who has been director of the laboratory since August 1941, will return to her home in California, according to *Arizona Public Health News*. Dr. Greene received his degree of doctor of philosophy at the University of Arizona, Tucson, in 1933.

COLORADO

Medical Journal Dedicated to Donald Cummings.—The *Rocky Mountain Medical Journal* for June was designated the Donald E. Cummings Memorial Number in honor of the man who on Dec. 15, 1942 died in an airplane crash in Utah while on his way from Denver to Nevada to give advice and protection to the employees of an essential industry. Mr. Cummings was associate professor in the department of medicine, University of Colorado School of Medicine, Denver, and was made director of a division of industrial hygiene created in 1937 at the medical school. While teaching chemical engineering at the Massachusetts Institute of Technology, Cambridge, Mr. Cummings developed pulmonary tuberculosis. He went to Saranac Lake, N. Y., for treatment and entered the Saranac Laboratory about 1926 for the study of tuberculosis as a research chemist, later being appointed assistant director. In 1932 he organized a field division of the Saranac Laboratory and became its director. During this entire period until the time of his death Mr. Cummings was active in forwarding the knowledge on industrial diseases. He assisted in setting up a laboratory of industrial toxicology at the University of Colorado School of Medicine and rehabilitation clinic in the Colorado General Hospital. He was an organizer and president of the American Industrial Hygiene Association.

FLORIDA

Graduate Short Course.—The annual graduate short course sponsored by the Florida Medical Association was held in Jacksonville, June 19-24. Speakers included:

Dr. Eugene A. Stead Jr., Atlanta, Ga., medicine.
Dr. Samuel F. Ravenel, Greensboro, N. C., pediatrics.
Dr. Oren Moore, Charlotte, N. C., obstetrics.
Dr. Robert L. Sanders, Memphis, Tenn., surgery.
Dr. Clayton T. Beecham, Philadelphia, gynecology.

State Medical Election.—Dr. Shaler Richardson, Jacksonville, was chosen president-elect of the Florida Medical Association at its recent annual meeting, and Dr. John R. Boling, Tampa, was inducted into the presidency. Other officers are Drs. Whitman C. McConnell, St. Petersburg, Horace A. Day, Orlando, and Robert D. Ferguson, Ocala, vice presidents; Robert B. McIver, Jacksonville, is secretary-treasurer, and Stewart G. Thompson, D.P.H., Jacksonville, managing director. Appointment of Dr. Homer L. Pearson of Miami as editor of the *Journal of the Florida Medical Association* was reported in *THE JOURNAL*, June 3, page 367.

GEORGIA

Dr. Kelly Returns as Dean.—On July 1 Dr. G. Lombard Kelly, who has been Secretary of the Council on Medical Service and Public Relations of the American Medical Association under a six months leave granted by the University of Georgia School of Medicine, Augusta, returned to the medical school as dean and professor of anatomy.

ILLINOIS

Physician Outlives Life Expectancy.—Dr. John H. Burlingame, Evanston, formerly of Cherokee, Iowa, who observed his ninety-sixth birthday on March 8, was presented with a check for \$1,273 by the Union Central Life Insurance Company, June 22. In presenting the check, officials said that he was "one man in a hundred thousand," having outlived the

expectancy of the company's policy. Dr. Burlingame, who graduated at Rush Medical College in 1878, retired in 1927. He practiced in Cherokee for forty-seven years and served ten years as mayor.

CHICAGO

Personal.—George Peck, formerly assistant superintendent of Michael Reese Hospital, was recently appointed superintendent of the Illinois Eye and Ear Infirmary, succeeding Dr. John B. Cipriani.

Special Society Elections.—Dr. Charles M. Drucek Jr. was installed as president of the Chicago Society of Industrial Medicine and Surgery, Dr. J. Daniel Willems as vice president and Dr. Frank P. Hammond as secretary-treasurer.—Dr. Lester M. Wieder is president of the Chicago Dermatological Society, Dr. Frederick R. Schmidt vice president and Dr. Marcus R. Caro secretary-treasurer.

INDIANA

Personal.—Dr. Frank E. Wiedemann, Terre Haute, recently observed his fiftieth anniversary in the practice of medicine.—Dr. John William Herr, formerly of Millhousen, has been named health commissioner of Posey County to fill the unexpired term of Dr. William E. Jenkinson, resigned.

Physician Goes to Nigeria as Medical Missionary.—Dr. and Mrs. Howard A. Bosler, New Paris, recently sailed for Nigeria, where they have taken work as medical missionaries. According to the *Journal of the Indiana State Medical Association* Dr. Bosler will be in charge of an area covering 150 miles, which includes two general hospitals, a number of first aid stations and a large leper colony. The physician and his wife expect to return in four years. This is said to be the third trip to Africa for Dr. and Mrs. Bosler.

IOWA

Report on Use of Serum or Plasma.—The division of preventable diseases of the Iowa State Department of Health, under the direction of Dr. Carl F. Jordan, Des Moines, has issued a report concerning the use of human serum and plasma during a limited period through which its Serum-Plasma Center has functioned. During 1943 and the first four months of 1944 case reports totaled 214, of which 165 contained needed information. In the series of 165, accidental injuries, including burns, accounted for 39 cases; 34 were due to complications of pregnancy and 92 to surgical conditions. In 113 instances (68.5 per cent) the result of use of serum or plasma was stated as "good." Fatalities in the group of 165 numbered 28, a case fatality of 17 per cent.

KANSAS

Changes in Health Officers.—Dr. Edwin M. Ireland has been appointed health officer of Pratt County to succeed Dr. Ernest J. Becker, who was transferred to Butler County. P. A. Surg. Thurman R. Laughbaum, U. S. Public Health Service, has been appointed health officer of Geary County to succeed Dr. Norman A. Burkett, Junction City, who has resigned to enter the Army.

MASSACHUSETTS

State Medical Election.—Dr. Reginald Fitz, Boston, was chosen president-elect of the Massachusetts Medical Society at its meeting in Boston, May 22-24. Dr. Elmer S. Bagnall, Groveland, was inducted into the presidency. Other officers include Drs. Sumner H. Remick, Waltham, vice president, Michael A. Tighe, Boston, secretary, and Eliot Hubbard Jr., Cambridge, treasurer.

Licenses Revoked.—The license of Dr. Harry J. Weintraub, Malden, was revoked by the state board of registration in medicine, May 17, because of gross misconduct in the practice of his profession. At the same meeting the board, for a similar reason, revoked the licenses of Drs. Louis L. Hoff, Holyoke, Ray D. Hester, West Warren, William D. Ducey, Brockton, and Ralph K. Coleman, Lowell.

Foundation for Experimental Biology Increases Staff.—Three new research members of the Worcester Foundation for Experimental Biology include Erwin Haas, Ph.D., of the University of Chicago; Robert P. Jacobsen, Ph.D., of the U. S. Public Health Service, and Oscar Hechter, M.S., of the University of Southern California. According to *Science* Dr. Haas's work is primarily in the field of respiratory enzymes. Dr. Jacobsen is a steroid chemist, and Dr. Hechter's contributions have been primarily in endocrinology (*THE JOURNAL*, May 13, p. 110).

MICHIGAN

Fellowships in Pathology.—Mount Carmel Mercy Hospital, Detroit, has made available \$2,000 annually to the city board of education to be used to establish fellowships for young physicians specializing in pathology. The fellowships are available to Wayne University students, and it was proposed that students holding these fellowships register at the Wayne University Graduate School and qualify for the master's degree.

Memorial to Physician.—Citizens of Saugatuck have raised a fund to finance the erection of a memorial to the late Dr Robert J Walker. The memorial will be erected in the southeast section of Butler Park, in the vicinity of which Dr Walker spent a great part of his life. It will consist of a drinking fountain bordered by five concrete slabs reaching out to the sides forming a half circle, representing the five decades of service of Dr Walker to the community.

Licenses Revoked.—The licenses to practice medicine of Drs Martin B Robinson and Tied W Thomas, both of Detroit, have been revoked, newspapers reported June 16. According to the *Detroit News*, Dr Robinson was convicted in Wayne Circuit Court of conspiracy to obstruct justice and was sentenced to three to five years in the state prison. His appeal to the Michigan Supreme Court was denied. The report stated that the physician's arrest and conviction resulted from the grand jury investigation of graft in Wayne County. Dr Robinson recently went into federal court on a writ of habeas corpus, claiming that his constitutional rights had been violated and that he had been convicted illegally. This phase of the case is pending, and he is held temporarily in the county jail. Dr Thomas was convicted in federal court of violating the Espionage Act as an alleged member of a Nazi spy ring in Detroit and was sentenced to serve sixteen years in federal prison. An appeal from the conviction has been filed (*THE JOURNAL*, April 1, p 1000).

NEW JERSEY

Rutgers Research Council.—A research council has been established at Rutgers University, New Brunswick, to promote research in all departments of the university. William H Cole, PhD, since 1928 professor of physiology and biochemistry at Rutgers, has been appointed director of the council and will serve in a staff relationship to deans, heads of departments and members of the faculty concerning the research programs. He will represent the university in developing reciprocal arrangements with governmental, industrial and business and professional institutions outside the university. According to *Science* a special research fund has been placed at the disposal of the council and applications for grants for next year are now being considered.

Philip Levine Joins Ortho Research Foundation.—Dr Philip Levine, since 1935 bacteriologist and serologist of Newark Beth Israel Hospital, Newark has been appointed director of the biologic division of the Ortho Research Foundation, Linden. Dr Levine graduated at Cornell University Medical College, New York, in 1923. For a time he served as assistant at the Rockefeller Institute and for a number of years on the faculty of the University of Wisconsin. The Ortho Research Foundation was established January 17 by Ortho Products, Inc, Linden. For the present it will be located with the new research division of the company. The foundation will consider requests from academic centers for grants twice annually, April 1 and October 1. The requests should be accompanied with an outline of the study. The organization of the foundation was one of several steps taken by Ortho Products, Inc, to broaden its program in the various phases of human fertility. Among its studies will be vaginal infections and infestations, toxemia of pregnancy, multitudinous problems of menstruation, physiologic imbalances in pregnancy and psychosomatic problems in gynecology. Dr Clair E Folson, New York, is director of research for the foundation.

NEW YORK

Graduate Lectures.—Dr Nathan P Sears Syracuse, will discuss "Gynecology in General Practice" before the Ontario County Medical Society in Geneva, July 11. Drs Francis R Irving and Charles A Lippincott, both of Syracuse, discussed "Caudal Anesthesia in Obstetrics." The lectures are a part of a graduate series in obstetrics and gynecology sponsored by the state medical society and the state department of health.

Sale of Vitamin Tablets Curbed.—Attorney General Nathaniel L Goldstein ruled on June 23 that vitamins, when listed in the official United States Pharmacopeia or National Formulary, were drugs and could be sold retail only by regis-

tered pharmacists, drug stores and registered stores. According to the *New York Times*, the action may lead to a court test or a drive at the next session of the legislature for an amendment to the law to permit general retail sale because of the thousands of stores, including department stores which have been selling concentrated vitamins. Mr. Goldstein gave the ruling in response to a letter, June 9, in which Leslie C Jayne, secretary of the state board of pharmacy, asked

whether vitamin products in concentrated form that is pills, tablets, capsules and drops, come under the classification of drugs as provided in article 51, Education (pharmacy) Law. Is their sale restricted to places licensed by the New York State Board of Pharmacy?

Dr Jayne, in his letter, informed the attorney general that vitamins are articles recognized in the official United States Pharmacopeia, there appearing in the Pharmacopeia monographs setting forth the standards for vitamins A, B₁, B₂, or G, C and D and preparations containing these vitamins. Mr Goldstein said that his opinion was concerned only with vitamins in concentrated form, as distinguished from their natural state as found in vegetables, meat and other articles of normal diet. In his reply Mr Goldstein stated that vitamins are not proprietary medicine.

A later report in the *Times* indicated that grocers throughout the state were protesting the ruling because of the fact that it would give drug stores a "virtual monopoly" in New York on a business that amounts throughout the nation to \$250,000,000 a year.

New York City

New Boric Acid Labeling Effective September 15.—On June 10 the New York City board of health announced that the enforcement of the new labeling requirements for boric acid had been postponed for a period of three months "to avoid confusion," it is reported. The enforcement date will be September 15 instead of June 15 (*THE JOURNAL*, June 17, p 505).

Camp Nyda for the Diabetic Opens.—On July 3 Camp Nyda, a camp for diabetic boys and girls at Walkill, was opened for its ninth consecutive season under the auspices of the New York Diabetes Association. Dr Frederick W. Williams, a director of the association, is in charge of the medical department of the camp. Any one wishing to send funds to assist in the project may address donations to the New York Diabetes Association, 2 East 103d Street. According to the *New York Times*, at least \$7,365 is needed to send 100 children to the camp for a two weeks vacation. It costs about \$30 a week a child to finance special medical care, rigid diet requirements and the other special attentions. Camp Nyda is the only free diabetic camp for children in the New York area.

Biologic and Pathologic Research Center Planned.—Postwar plans of the New York Zoological Society include the construction of a \$200,000 biologic and pathologic research center at or near the Bronx Zoo, it is reported. Forty-three fellows of the society, attending a meeting at which the announcement was made, gave wholehearted support to the project. The new facilities would include studies of animal behavior, infection and cancer. Only animals that become sick will be used for experimental purposes, it was stated. The center will be open twenty-four hours a day and will be available to students in medical centers and universities. Tentative plans call for a two story building consisting of laboratories for research in chemistry, biology, bacteriology, parasitology and physiology. According to an announcement of Fairfield Osborn, president of the New York Zoological Society, the plan is unique and it is believed to be the first time that any zoo has tried to collaborate so closely with science. In commenting on the plan, Dr Francisco Duran-Reynals, associate professor of bacteriology at Yale University School of Medicine, New Haven, said "The program outlined could best be carried out by creating an Institute for the Comparative Study of Infection, or the Institute of Comparative Pathology, as a branch of the New York Zoological Society. The institute would take advantage of the animal resources of the Bronx Park and the Aquarium, and of the zoological and technical skills on which these resources are dependent."

Dr. Moorhead Retires as Medical Director of Transit System.—On August 1, after a month's vacation, Dr John J Moorhead will retire as medical director of the New York City Transit System. He was medical director of the Interborough Rapid Transit system for thirty-six years and with the unification became director four years ago of the city's transit system according to the *New York Times*. Dr Moorhead will be 70 years old July 15. On Dec 7, 1914 Dr

Moorhead, professor of clinical surgery at New York Post-Graduate Medical School and Hospital, Columbia University, was lecturing to a group of physicians in Honolulu when the Japanese attacked. He immediately organized surgical teams for operative treatment of the wounded and remained in Hawaii during the emergency on active duty as a colonel in the medical corps.

OREGON

The Sommer Memorial Lectures.—Dr. Alexis F. Hartmann, professor of pediatrics, St. Louis University School of Medicine, delivered the Ernst A. Sommer Memorial Lectures under the auspices of the University of Oregon Alumni Association, June 15-17, in Portland. The titles of his talks were "Medical Emergencies, with Emphasis on Treatment of Severe Disturbances of Alkalosis, Dehydration, Anhydremia and Edema," "Blood Administration, Parenteral Feeding and Oral Feeding in the Presence of Severe Gastrointestinal Symptoms" and "Principles of Diagnosis and Management of Severe Infections: Sepsis of Lateral Sinus Phlebitis; Meningitis."

PENNSYLVANIA

Personal.—Dr. Henry B. Davis, Lancaster, was elected president of the Pennsylvania Radiological Society at its recent meeting in Altoona.

Philadelphia

Schireson Indicted in Fee Fraud.—Dr. Henry J. Schireson was indicted by the grand jury June 27 on charges of fraudulently obtaining fees from a patient, according to the *Philadelphia Inquirer*. It was stated that the principal witness against the physician was John C. D'Alessandro, a waiter, who testified that Dr. Schireson obtained \$250 from him during last September and October to perform an operation "on the strength of representations that he was on the staff of naval hospital." The *Inquirer* stated that two true bills were returned against the defendant, both of which were handed up to Judge Frank Smith in Quarter Sessions Court, where Dr. Schireson will be listed for trial in the early fall.

WEST VIRGINIA

District Meeting.—The Sixth Councilor District of the West Virginia State Medical Association will hold its annual conference at Ashford General Hospital, White Sulphur Springs, July 15-16. The district embraces the medical societies of Kanawha, Boone, Fayette, Raleigh and Greenbrier Valley. Among the speakers will be:

Major Edward N. Pleasants, M. C., Wartime Neuropsychiatry.
Capt. John W. Riley, M. C., Hanging Casts in the Treatment of Fractures of the Humerus.
Lieut. Col. John Y. Pennock and Major William A. Antopol, M. C., Lupus Erythematosus.
Major George C. Prattle, M. C., Injuries of Warfare.
Major Ralph H. Kunstader, M. C., Oomycosis of the Lung.
Major Robert P. Kelly Jr., M. C., Colles' Fractures; Technic of Reduction.
Capt. Frederick W. Cooper Jr., M. C., Penicillin Therapy.

GENERAL

Dr. Ferrell Named Medical Director of Markle Foundation.—Dr. John A. Ferrell, since 1927 associate director of the International Health Division of the Rockefeller Foundation, has been appointed medical director of the John and Mary R. Markle Foundation for research in medical and physical sciences in the United States and Canada. The appointment was effective July 1.

Leslie Dana Medal to Go to Linda Neville.—Miss Linda Neville, founder of the Kentucky Society for the Prevention of Blindness and for forty years engaged in activities to aid the blind, has been announced as the 1944 recipient of the Leslie Dana Gold Medal awarded annually for achievements in the prevention of blindness and the conservation of vision. Miss Neville was chosen by the St. Louis Society for the Blind, through which the medal is offered by Mr. Leslie Dana of St. Louis. The award is given on the recommendation of the Association for Research in Ophthalmology. Miss Neville was born in Lexington, Ky., in the home which has served as the headquarters for her activities for the prevention of blindness. She has been active in "lobbying" for legislation to assist the blind. Since 1934 the state legislature has appropriated money to supplement her private fund, starting with \$1,000 and increasing the annual amount to \$2,500 in 1935 and thereafter. The fund assists in caring for the blind in hospitals, pays railroad fares and purchases glasses and artificial eyes. Miss Neville was once honored by the Columbia Broadcasting System with the dramatization of her life on a coast-to-coast network and presented with a medal for her "outstanding qualities as a humanitarian."

Research Fellowships Awarded.—Three of four fellowships entrusted to the committee on medical education of the New York Academy of Medicine have been awarded. The fellowships were provided by Charles Mayer of New York and consist of \$2,000 each. They went to Dr. Harry Goldblatt, associate director of the Institute of Pathology, Western Reserve University School of Medicine, Cleveland, and Philip Handler, Ph.D., associate in physiology and nutrition, Duke University School of Medicine, Durham, N. C., for work on "use of choline and other lipotropic factors in the prevention and treatment of fatty infiltration of the liver and hepatic insufficiency." Dr. Richard Lewisohn, cancer research laboratory of the Mount Sinai Hospital, New York, was granted a fellowship for work on "action of ingested choline, lecithin, methionine and inositol on precancerous lesions and disorders associated with neoplastic diseases." John R. Murlin, Sc.D., professor of physiology, University of Rochester, N. Y., received a fellowship for research on "effects of riboflavin, certain amino acids, and casein on the development and growth of cancer." The committee on medical education did not receive a satisfactory application for the fourth subject provided for under the fellowships, and no award was made for a study "of the relationship between precancerous lesions of the mouth, hepatic insufficiency and gastrointestinal disorders."

Sugar Research Foundation Awards Grants.—On June 6 the Sugar Research Foundation, New York, announced five grants totaling \$104,100 for studies on various phases of sugar research. Previously a fund of \$125,000 was awarded to the Massachusetts Institute of Technology, Cambridge, for fundamental research and development of industrial uses of sugar. The recent grants include the following:

Ansel B. Keys, Ph.D., professor of physiologic hygiene, University of Minnesota, Minneapolis, \$36,000, need and comparison of carbohydrates.
Dr. Julian D. Boyd, associate professor of pediatrics, State University of Iowa College of Medicine, Iowa City, \$21,500, dental caries in children.
Dr. Frederick J. Stare, assistant professor of nutrition, Harvard Medical School, and Alfred Le Roy Johnson, D.M.D., dean, School of Dental Medicine, Harvard University, both of Boston, \$25,000, dental caries, using experimental animals.
Melville L. Wolfrom, Ph.D., professor of chemistry, Ohio State University, Columbus, \$18,000, study of beet and cane molasses for industrial fermentations and development of uses in medicine.
Carl A. Neuberg, research professor of chemistry, Washington Square College, New York University, \$3,600, sugar oses.

At the dinner at which the awards were made, Dr. Keys stated that his staff had selected 24 volunteers from conscientious objector camps who were physically equipped to undergo rigid tests at the laboratory. The services of these men will be used in studying the metabolism of sugar and its relationship to vitamins in the human system. Up to this time experiments along these lines have been conducted almost exclusively with animal subjects. By employing conscientious objectors, students, soldiers and hospital patients for his experiments, Dr. Keys expects to reach "quantitative answers applicable to man" which can be obtained only by researches on man.

Special Society Elections.—Dr. Charles M. Hendricks, El Paso, Texas, was chosen president-elect of the American College of Chest Physicians during its annual meeting in Chicago, June 10-12, and Dr. Jay Arthur Myers, Minneapolis, was installed as president. Other officers include Dr. Richard H. Overholt, Brookline, Mass., and Brig. Gen. Shelley C. Marietta, M. C., vice presidents, and Dr. Paul H. Hollinger, Chicago, secretary-treasurer. Mr. Murray Kornfeld, Chicago, is the executive secretary.—Dr. Lowell S. Goin, Los Angeles, was chosen president of the American College of Radiology at its meeting in the Stevens Hotel, Chicago, June 14. Dr. Edgar P. McNamee, Cleveland, was named vice president and Dr. Hollis E. Potter, Chicago, treasurer. Mr. Mac P. Cahal, Dallas, is the executive secretary.—Dr. Alexander R. Stevens, New York, was chosen president of the American Association of Genito-Urinary Surgeons at its annual meeting in June in Chicago. Dr. Clarence R. O'Crowley, Newark, N. J., was named vice president and Dr. Charles C. Higgins, Cleveland, was reelected secretary-treasurer. The Keyes Memorial Medal was reelected secretary-treasurer. The Keyes Memorial Medal of the association was awarded to Dr. Henry G. Buelow, New York, for his contributions to urology.—Dr. Fuller Albright, Boston, was chosen president-elect of the Association for the Study of Internal Secretions at its annual meeting in Chicago, June 12-13, and Carl R. Moore, Ph.D., Chicago, was installed as president. Dr. Willard O. Thompson, Chicago, is vice president and Dr. Henry H. Turner, Oklahoma City, secretary-treasurer. The 1945 annual meeting will be held the Tuesday before the meeting of the American Medical Association in New York.—Dr. Albert C. Furstenberg, Ann Arbor, Mich., was chosen president of the American Laryngological, Rhinological and Otolaryngological Society at its annual meeting, June 9-10, in New York and Dr. Stewart Nash, Rochester, N. Y., was reelected secretary.—New officers of the American M. A.

cal Women's Association chosen at its annual meeting in Chicago, June 10-11, are Drs. Kate Savage Zerfoss, Nashville, Tenn., president-elect; Alice Stone Woolley, Poughkeepsie, N. Y., president; Carroll C. L. Birch, Chicago, Margaret Virginia Beyer, Sykesville, Md., and Mary B. Campbell, Detroit, vice presidents; Isabel M. Scharnagel, New York, secretary, and Mary Riggs Noble, Bowmansdale, Pa., treasurer.—Dr. Edward Sterling Nichol, Miami, Fla., was chosen president of the American Therapeutic Society at its meeting in Chicago, June 10, and Drs. Thomas J. Coogan, Chicago, and Charles L. Hartsock, Cleveland, were named vice presidents. Dr. Oscar B. Hunter, Washington, D. C., was reelected secretary.

LATIN AMERICA

Health Activities in Latin America.—Report of Inter-American Health Service in Paraguay.—A report has been published covering the first two years of operation of the Inter-American Cooperative Health Service in Paraguay. Appearing in the *Newsletter* of the Health and Sanitation Division of the Office of the Coordinator of Inter-American Affairs, the report covers the two year period from 1942 to 1944. One of the first undertakings of the cooperative health service in Paraguay was the construction of a large building in Asunción to provide office space for the ministry of health, the director of the department of public welfare and the director of the department of hygiene, as well as space for a number of the divisions of the department of hygiene and the principal health center for Asunción. The health center section of the building will provide clinics for general medicine, tuberculosis, maternal and child hygiene, syphilis and skin, dentistry and eye, ear, nose and throat. A large public health laboratory will also be housed in the building. This laboratory will perform all bacteriologic and serologic examinations and analysis for the various divisions of the ministry of health as well as for the new health center. The building will also house the pharmacy of the ministry of health. The building contract for construction was let during November 1942. By May 1944 the entire project was over three-fourths finished. It is estimated that the building will be ready for operation during the latter part of 1944. The widespread program includes the establishment of five health centers in five localities, four of which either share a building with a hospital or are connected with the hospital by covered passageways. In each of these four instances the laboratory, pharmacy and x-ray section are built in the health center, designed to serve both institutions. This combined use of personnel and facilities was particularly practical in Paraguay, not only in terms of good public health procedure but because of the scarcity of equipment and the limited number of available medical personnel. The centers are in the Barrio Obrero section, Asunción; Encarnación and Concepción. At the time of the report, construction was under way for a center at Villarrica and a second one in Asunción. In July 1942 Cooperative Health Service made plans to remodel extensively the Hospital Nacional de Clinicas, the principal hospital in Paraguay operated under the supervision of the Academy of Medicine of the National University with funds provided by the ministry of public instruction and justice to serve as a general hospital and teaching institution of the academy of medicine. There are about 600 beds, and the clinics of the hospital serve an average of 500 ambulatory patients daily. The improvements included the installation of a safe water supply and sewerage system, rebuilding and equipping of the hospital kitchen, conversion of the present administration building into central hospital laboratory, screening, painting and renovating the entire hospital building and generally improving and increasing nursing instruction facilities in both the surgical and the medical sections of the hospital. The entire project was expected to be completed sometime in July. Additional construction for the care of the sick included a 100 bed tuberculosis sanatorium at Asunción, with provisions for future expansion into a 300 bed unit. At the present time facilities for treating tuberculosis are limited to 60 or 70 beds made available in the National Hospital de Clinicas. In 1941 the recorded death rate from tuberculosis in Asunción was 196 per hundred thousand persons. As a part of the plan the national government donated a large tract of land valued at \$21,000 on the edge of the city as the site for the building, which by May 1944 was half-way completed. Accommodations call for 40 beds each for men and women and 20 beds for children. The Barrio Obrero Hospital in Asunción, started by a group of students of the Medical University Extension Association in 1936, was remodeled under the auspices of the cooperative health service and an addition erected to provide a combination 50 bed hospital and health center, with x-ray

and laboratory sections to serve both units. The addition was completed during June 1943, and 18 hospital beds, together with all health center activities, were moved into the new section in order that the old part of the hospital might be changed into a health center. The hospital section contains 12 obstetric beds, a nursery with 12 bassinets, 17 surgical beds, 10 medical beds, 8 children's beds and 3 for isolation.

At the request of the minister of health during September 1942 and again during January 1944, Malcolm H. Soule, Sc.D., special consultant to the Coordinator of Inter-American Affairs and member of the medical advisory board of the Leonard Wood Memorial, visited the leper colony in Paraguay to study the social and medical needs. This 4,000 acre colony is located over 7 miles by an ox cart road from Sapucay. In September 1942 the number of patients totaled 386 in all stages of the disease. Dr. Soule recommended the construction of a 100 bed hospital at Sapucay, believing that because of the present inaccessibility of the colony a number of patients do not report the disease. An alternative was the construction of an adequate road to the existing colony. The latter project is soon to be started. In the meantime a brick plant has been built at the colony with the aid of ambulatory patients to manufacture bricks and tile for the proposed hospital. Dr. Manuel Gimenez Uriarte, who recently completed fourteen months of study of the disease in Rio de Janeiro on a scholarship provided by the Brazilian government, is director of the leper colony. As a result of the recommendation of Dr. Soule that children born to leprosy parents be separated from the mother at once, a preventorium has been constructed, including five buildings with a 24 bed dormitory for boys, a similar one for girls, a 16 bed nursery building, an administration building, also housing the main dining room, and a small laundry building. During the first month of operation after it was completed in January 1944, 26 children from the ages of 9 months to 13 years were removed from the colony to the preventorium, of which Dr. Ovidio Miquel is medical director. Supporting Dr. Miquel and his staff is the Asociacion de Ayuda a los Lazaros y Defensa contra la Lepra, which has been instrumental in obtaining funds and clothing for the children in the preventorium. After his visit to the preventorium in January, Dr. Soule commented: The preventorium including the crèche, or nursery, is at this moment the envy of every individual associated with leprosy work. I know of no institution to equal it.

The construction of a laboratory in Asunción for the bacteriologic and chemical analyses of water and milk, and sewage, is another accomplishment of the service. The laboratory was set up in a section of the building recently completed by the ministry of health at the Instituto de Higiene with the Inter-American Cooperative Health Service furnishing the equipment and the maintenance. Dr. Domingo Sanjurjo is director and bacteriologist and Dr. Francisco Ocaris assistant. Since its establishment the laboratory has completed a systematic examination of all public and private water supplies.

The report discusses the training of professional and technical personnel, the provision of fellowship, the medical training for nurses, and scholarships for sanitary inspectors. Public health education activities are launched with a series of radio broadcasts by public health and private physicians. In December 1942 a special health week was observed by radio. From August through December 1942 thirty-two talks were given in which venereal disease, tuberculosis and cancer were particularly emphasized. During 1943 three senior medical students in the Faculty of Medical Sciences were employed as lecturers. Talks were given in schools, factories, health centers and other gathering places. In two months thirty-nine conferences were attended by more than 3,500 persons.

Mr. Charles G. Bennett was sent as a representative of the U. S. Bureau of Census to assist in the organization of the division of vital statistics in the ministry of health and in the training of local personnel. Medical journals and textbooks were supplied to the leading medical schools and hospitals in Paraguay. The report also includes mention of a special malaria survey in the Hernandarias region of the upper Parana River and included the study of a tract of land which the Paraguayan government is considering for the location of a resettlement colony.

CORRECTION

Chemotherapy of Burns.—In the article by Cope with this title in THE JOURNAL for June 24, in the first column on page 540, at the end of the third paragraph is the statement "For each per cent that the hematocrit is above the normal of 45, 50 cc. of plasma should be administered." This should have read "100 cc. of plasma should be administered."

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 3, 1944.

The Rehabilitation of the Injured

A feature of the present war is the increased extent to which the government is concerning itself with measures to remedy its consequences. This may be regarded as an example of the present socialistic trend of British politics. In 1941 the Ministry of Labor and National Service started a scheme for the training and resettlement of disabled persons. This scheme had two objectives: (1) to help those who had suffered recent disablement—whether through war service, in air raids or from other causes—to take up employment of a kind suited to their disability and (2) to help those whose disability was of earlier date to prove their capacity for useful work and play their part in the war effort. Everything is done under the scheme to get disabled people into the kind of employment best suited to their disability. A representative of the ministry, known as the disablement rehabilitation officer, visits all hospitals and service establishments from which discharges on medical grounds take place and interviews any person who has a disablement and who needs advice and help to find suitable employment. He gets a report from the medical authorities as to the nature of the disablement and the kind of employment and training which seems most suitable. In amputation cases a special report is obtained from the limb fitting surgeon at the center where the artificial limb is provided.

Training for a new occupation is provided when necessary. A special residential center has been set up to assist in the return to work of men who, following a period of hospital or other medical treatment, are not fit to take up employment or full time vocational training. Its object is to restore confidence and mental and physical fitness through healthy indoor and outdoor occupation. Vocational training is obtained for all persons whose disablement prevents them from resuming their normal occupation. Suitably qualified persons whose educational careers have been interrupted by war service are given assistance to continue their education. Allowances of money for maintenance during training are paid according to a scale which takes into account the existence of wife and children. No such scheme for the rehabilitation of the injured has ever been in force in previous wars.

The Control of Cross Infection in Hospitals

The prevention of cross infection in hospitals has recently received much attention here. A subcommittee of the Medical Research Council, consisting of experts on the subject, has made an important report which deals principally with children's wards, where the danger is greatest. They point out that the risk of cross infection is serious unless there are sufficient isolation units and nurses trained in the prevention of infection. Children should not be admitted to a hospital for trivial complaints if this can be avoided, and they should not be retained longer than necessary. The large, open, undivided ward should now be considered obsolete; structural subdivision into smaller units is the modern tendency. Nearly half the beds in hospitals for children should be in individual "cells" with walls extending from floor to ceiling, and the remainder should be in small units. These allow distribution of patients according to medical hazards rather than according to age, separation of the known infected from the uninfected, and grouping together of infectious patients from a common environment.

Nurses should be allocated according to cross infection hazards, the report recommends. There is obvious risk in employing in a milk kitchen nurses who are also on outpatient or

toilet duty, and in the not uncommon practice of employing "runners" between wards at night. The same considerations apply to other members of the staff and to arranging clinical courses for students. The admission of patients—particularly child, maternity and infectious cases—direct to open wards without preliminary examination is deplored in the report. The admitting medical officer should note the dates of previous infections, recent contacts and immunization. He should look for prodromal signs, nasal and aural discharges, tonsillitis, diarrhea and vomiting, skin disorders and similar evidence of infection. As soon as possible after admission, swabs should be taken from patients with upper respiratory infection, discharges or skin infections.

If "cell" accommodation is insufficient, selected patients should be nursed by the technic known as "bed isolation" or "barrier nursing," the report states. This technic should also be used in conjunction with cell isolation. Children should be immunized against diphtheria and whooping cough. As visitors may introduce infection, they should be limited and should not include children. They should wear masks and gowns. To control droplet infection, ventilation should be as free as possible, winter and summer, day and night, the committee declares. In doing surgical dressings or in feeding children under 1 year of age nurses should wear masks. To control dust borne infection, blankets and pillows should be gently handled. The bedclothes of 1 patient should not be placed on the bed of another or allowed to touch the floor. Impregnation of blankets with "technical white oil" reduces materially the number of bacteria scattered, it is stated. The floors of wards and passages, if of wood or covered with linoleum, should be treated with spindle oil. This prevents dust from rising during sweeping. Rubber, composition or concrete floors should be washed, vacuum cleaned or sprinkled with moist sawdust before sweeping. All dusters should be dampened with diluted "white fluid" (phenolic emulsion) before use. As dust is heavily contaminated with pathogenic bacteria, nurses should not undertake cleaning and ward maids should not undertake any nursing duties.

Rickets Not Increased in Spite of the War

It has been pointed out in previous letters that on the whole the health of the country has improved during the war. A report issued by the Ministry of Health shows that rickets, a disease of children at one time very prevalent in this country, has shown no increase during the war. It was comparatively rare before the war, but it was nevertheless possible, as the chief medical officer of the ministry states, that the downward trend of its incidence might have been checked. A "Report on the Incidence of Rickets in Wartime" by the British Pediatric Association shows that this has not occurred. The present position is regarded by the chief medical officer as due in no small measure to the efforts that have been made to maintain a high standard of nutrition in infants and young children by securing priorities for them in the foods and vitamin supplements essential for their growth and well being.

The investigation carried out by the British Pediatric Association included a clinical and x-ray examination of one wrist of 5,283 children between the ages of 3 and 18 months in twenty-three areas of Britain. The children were as far as possible well, having been selected from among those attending welfare centers or wartime nurseries. Of these only 105 showed x-ray evidence of rickets. A questionnaire was drawn up by Dr. Percy Stocks, medical statistician to the General Register Office and the Ministry of Health. He reports that the incidence of rickets shown radiologically in children between 3 and 18 months of age was 2.5 per cent in children up to the age of 6 months, 4 per cent during the first year of life and negligible after this. The clinical diagnosis of rickets showed great variability in different parts of Britain, being completely absent in some small towns but as high as 61 per cent in Sheffield.

the center of the steel industries. The correlation between the clinical and the radiologic diagnosis was poor. Only a small proportion of the clinically positive cases were confirmed radiologically. It was suggested that this result, far from throwing doubt on the value of clinical diagnosis, may be interpreted as a failure of radiology to detect all cases of rickets. But this view is refuted by the fact that clinical diagnosis failed to pick out half the cases of active rickets diagnosed by radiology. There are difficulties in diagnosis by either method, especially in the healing stage, and there is as much subjective influence in the radiologist's opinion as in that of the clinical observer. The severe type of rickets with deforming bone changes has disappeared from Britain, and this fact involves some modification of the clinical conceptions of rickets. It is suggested that a disturbance of calcification sufficient to indicate active rickets in a roentgenogram but not detected clinically, may need a new terminology.

BRAZIL

(From Our Regular Correspondent)

May 20, 1944.

Vital Statistics of Rio de Janeiro and São Paulo

Provisional vital statistics for the first quarter of the present year (mostly summer in the Southern Hemisphere) are now available for the two largest cities of Brazil—Rio de Janeiro, the capital city, and São Paulo, the most important industrial center of the country. These two cities differ as to size, climate and composition of population, the dissimilarities explaining, at least in part, the differences in vital statistics. The present calculated population of Rio de Janeiro is 1,927,000 inhabitants, while that of São Paulo is 1,399,000. The latter city has a much cooler climate and a lower percentage of colored inhabitants. During the first quarter of 1944 the annual birth rates were 21.14 for Rio de Janeiro and 25.74 for São Paulo. The death rate from all causes for Rio de Janeiro was 16.48 and for São Paulo was 9.31. For the age group under 1 year, for Rio de Janeiro there was an infant mortality rate of 178 per thousand live births against an infant mortality rate of 98 per thousand live births in the same age group for São Paulo. Of the total number of deaths registered for Rio de Janeiro, 30.53 per cent, or 5.03 per thousand of population annually, were due to infectious and parasitic diseases and for São Paulo 20.99 per cent, or 1.95 per thousand population annually from the same causes. On the basis of the number of deaths registered during the first quarter of the year the annual death rates from the most important communicable diseases were respectively for Rio de Janeiro and São Paulo typhoid 3.49 and 3.22 per hundred thousand of population, whooping cough 17.43 and 10.29, diphtheria 4.92 and 3.64, tuberculosis 293 and 103, influenza 45.54 and 14.36, measles 11.90 and 3.22, dysentery 20.72 and 18.44 and leprosy 5.33 and 0.21. For the same period the number of deaths from diarrhea and enteritis in the age group under 2 years was 1,109 for Rio de Janeiro and 633 for São Paulo, or respectively 13.80 per cent and 14.59 per cent of the number of deaths from all causes, which corresponds to annual death rates of 228 and 138 per hundred thousand of population.

Brief News

Under the chairmanship of Dr. Fernando Herrera Ramos, a Uruguayan Congress of Medicine is now being held in Montevideo. Brazilian and Argentine physicians have been specially invited. The main subjects to be discussed are arterial hypertension and rheumatic diseases. Among the papers presented to the congress are those of Drs. Waldemar Berardinelli, Moacyr Alvaro, Mariano Castex, Bernardo Houssay, Nicolas Romano, Pedro Cossio Arrillaga, Tomás Mariante and Granados Garcia.

For the first time candidates are being subjected to special examinations to be registered as "practical optometrists" and

authorized to sell, in all states of Brazil, spectacles with simple colored glasses, which have been sold up to now at almost every kind of store.

Dr. L. Pinheiro Guimarães has been appointed professor of pathology of the School of Medical Sciences of Rio de Janeiro. This school is independent of the University of Rio de Janeiro, where Dr. Pinheiro Guimarães began his teaching career.

The first South American Congress of Homeopathy was held recently at Porto Alegre, state of Rio Grande do Sul. One of the leading figures of this meeting was Dr. Ivano Duce of Uruguay. It is interesting to point out that the practice of homeopathy is not permitted in Argentina.

The Bahia Medical Association recently elected a new board of directors for the year 1944-1945. This board is composed of Drs. Adriano Pondé, Hosannah de Oliveira, Ezequiel da Costa, F. Carvalho Luz, Cicero A. da Silva, Domingos Saboia and Luis Cerqueira.

Dr. Madeira de Freitas, professor of medicine at the Fluminense Medical School of Niteroi, state of Rio de Janeiro, died recently at the age of 58. Besides teaching medicine, Dr. Madeira de Freitas was also an able writer whose books were highly appreciated in literary circles.

Dr. Nicolao Ciancio, a popular physician of the city of Rio de Janeiro, died recently at the age of 62. Dr. Ciancio, who was born in Italy, came to Rio de Janeiro with his parents, who died of yellow fever soon after their arrival. Overcoming many difficulties, young Ciancio struggled for his living, first as a newsboy, then as a newspaper reporter and finally as a journalist-physician. His column in the Rio de Janeiro *A Noite* was very popular, as he was the first doctor here to give medical information in the newspapers.

Dr. A. Murtinho Nobre, who had a large practice in Rio de Janeiro, died recently at the age of 65. After the death of Dr. Joaquim Murtinho, his uncle and the most famous of all homeopathic physicians of Brazil, twenty-five years ago, Dr. Murtinho Nobre was the leading homeopathist of the country.

Deaths

Dr. Helion Pova, professor of pathology at the University of Rio de Janeiro, died recently at the age of 45. Dr. Pova was considered one of the best professors of the medical school, where his intelligence, his culture, his enthusiasm for teaching and his integrity were greatly appreciated. Dr. Pova was a member of the National Academy of Medicine, where he won several prizes for specialized monographs written in competition with older and more experienced colleagues. One of his topics was cancer, the subject of several special postgraduate courses that he gave. Among his many medical books the best known are a textbook of pathology and an introduction to medicine.

Marriages

PETER W. WHEELER, Haverhill, Mass., to Miss Mary E. McCarthy of Manchester, N. H., in May.

SARAH HULDAH HOOVER, Richmond, Va., to Mr. George R. Jones of Jacksonville, Fla., June 10.

RICHARD LOOMIS OLIVER, Raleigh, N. C., to Miss Frances Christine Biles of Troy, June 10.

EDGAR JAMES MAXWELL JR., Atlanta, Ga., to Miss Edna Earle Shank of Augusta recently.

HAROLD P. WEAVER, Slatington, Pa., to Miss Regina Ezerski of Pittsburgh, Nov. 26, 1943.

CHARLES W. STRATTON JR., Lee, Mass., to Miss Marita J. Dick of Worcester, June 3.

Deaths

John Thomas Murphy ☉ prominent roentgenologist of Toledo and for thirteen years secretary of the Section on Radiology of the American Medical Association, died in St. Vincent's Hospital, Toledo, June 15, aged 58.

Dr. Murphy was born in Toledo April 15, 1885. He graduated at the Medical College of Toledo University in 1906. After postgraduate work at Cook County Hospital in Chicago, Dr. Murphy returned to Toledo to become associated with the late Dr. Julius Jacobson. He later taught histology and pathology at his alma mater.

Early in his career, Dr. Murphy became interested in radiology. In 1917 he accepted an appointment as director of the department of radiology at St. Vincent's Hospital, holding the position until his death. He was consultant to the Lucas County Hospital.

A specialist certified by the American Board of Radiology, Inc., Dr. Murphy held membership in numerous organizations, including the American Radium Society and the Radiological Society of North America. He had served as president of the American College of Radiology, the American Roentgen Ray Society, of which he had also been secretary, and the Academy of Medicine of Toledo and Lucas County. He held the office for two terms for the Detroit Roentgen Ray and Radium Society. He was a fellow of the American College of Physicians and of the American College of Radiology.

Dr. Murphy had been secretary of the Section on Radiology of the American Medical Association since 1932. In 1941 he received a Certificate of Merit from the Scientific Exhibit of the Association for his display on bone tumors. In 1937 he, with his associate Dr. Clarence E. Hufford, received a silver plaque for their exhibit of 600 x-ray plates showing results of treatment in bone diseases at the fifth International Congress of Radiology in Chicago and in 1942 a gold medal from the American Academy of Orthopaedic Surgeons for an exhibit on bone pathology. In 1941 he delivered the Hickey Memorial Lecture of the Wayne County Medical Society, Detroit, on "Use of X-Ray in the Treatment of Carcinoma of the Skin."

Long before pilots needed licenses to fly, Dr. Murphy flew his own plane. He was acquainted with many of the early fliers and was a sponsor of the Civil Air Reserve in Toledo. He maintained an interest in athletics since his college days when he had been a member of the track team and was a member of the American Amateur Athletic Association and president of the Toledo Figure Skating Club.

Chief among his numerous contributions to the literature were Dermoid Cysts in the Thorax, 1922; Bodies in the Lumen of the Appendix, 1922; A Complicating Factor in the Diagnosis of Chronic Upper Abdominal Diseases, 1925; Intracranial Calcifications, 1928; Influence Affecting the Future of Roentgenology, 1933; Nonsuppurative Osteomyelitis, 1935, and Irradiation Therapy in Breast Cancer, 1936.

Frank Albert Burton ☉ San Diego, Calif.; Denver Homeopathic College, 1904; Denver and Gross College of Medicine, 1906; specialist certified by the American Board of Otolaryngology; member of the American Laryngological, Rhinological and Otolological Society and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; on the staffs of the San Diego County General Hospital and Mercy Hospitals, San Diego, and the Scripps Memorial Hospital, La Jolla, where he died April 25, aged 71, of coronary thrombosis.

Albert Lucian Abbott, Covington, Ky.; Kentucky University Medical Department, Louisville, 1902; died April 24, aged 76, of myocarditis.

John Valdora Adams, Kelly, La.; College of Physicians and Surgeons, Dallas, 1905; died in the Caldwell Hospital, Columbia, April 13, aged 65, of hypertension.

Clarence Alonzo Aplin, Ames, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1893; died April 5, aged 87, of pneumonia and hypertension.

David G. Austin, Laingsburg, Mich.; Detroit College of Medicine, 1894; died in the Edward W. Sparrow Hospital, Lansing, April 30, aged 82, of arteriosclerotic myocarditis.

Charles Marion Aves ☉ Houston, Texas; University of Texas School of Medicine, Galveston, 1907; fellow of the American College of Surgeons; professor of clinical surgery (honorary) at the Baylor University College of Medicine; a major in the medical corps of the U. S. Army, serving overseas during World War I; on the staffs of the Baytown Hospital, Baytown; Hermann Hospital and St. Joseph's Infirmary; medical director of the Humble Oil and Refining Company; died April 25, aged 62, of cerebral hemorrhage.

William Shirmer Barker, Clayton, Mo.; Missouri Medical College, St. Louis, 1890; formerly on the staff of the Bethesda General Hospital, St. Louis; died April 16, aged 80, of myocardial failure.

Omer Fouts Barnes, Arcola, Ill.; Kentucky School of Medicine, Louisville, 1890; served as mayor of Arcola; on the staff of the Douglas County Jarman Hospital, Tuscola; died April 18, aged 79, of coronary heart disease.

Conde Auguste Beucier, Tolo, Ore.; Keokuk (Iowa) Medical College, 1894; died in the Community Hospital, Medford, March 30, aged 75, of coronary occlusion.

Frank Probasco Bohn, Newberry, Mich.; Medical College of Indiana, Indianapolis, 1890; member of the Michigan State Medical Society; past president of the Luce County Medical Society; formerly village president and member of the school board; served three terms in Congress and two terms in the state senate; for twenty-two years chairman of the Luce County Republican Committee; for many years president of the Newberry State Bank; member of the board of the Newberry State Hospital from 1900 to 1920; died June 1, aged 77.

Joseph Aurelie Broussard, Port Arthur, Texas; College of Physicians and Surgeons, Memphis, 1911; member of the State Medical Association of Texas; on the staff of St. Mary's Hospital; died March 19, aged 59, of carcinoma of the prostate.

Joseph Addison Brown, Silex, Mo.; Hospital College of Medicine, Louisville, Ky., 1889; past president of the Lincoln County Medical Society; served as mayor of Silex; president and director of the Silex Savings Bank; partner, Silex Drug Company; died in the Missouri Baptist Hospital, St. Louis, April 12, aged 85, of senile dementia.

William M. Diamond, Dickson, Tenn.; University of Louisville (Ky.) Medical Department, 1890; served as magistrate for Dickson County; formerly on the staff of St. Thomas Hospital, Nashville; died April 11, aged 80.

James Frank Donaldson, Middleton, Mass.; Harvard Medical School, Boston, 1902; member of the Massachusetts Medical Society and the New England Pediatric Society; chief of medical staff, emeritus, Salem Hospital, and North Shore Babies' Hospital, Salem; died March 10, aged 66, of arteriosclerosis.

Henry Drey, Brooklyn; Long Island College Hospital, Brooklyn, 1920; member of the Medical Society of the State of New York; on the staff of the Lenox Hill Hospital, died April 4, aged 49, of hypertension.

George Field Enoch ☉ Philadelphia; University of the South Medical Department, Sewanee, Tenn., 1898; physician for the Philadelphia County Prison; served on the staff of the Frankford Hospital; died in the Graduate Hospital of the University of Pennsylvania, April 3, aged 67, of uremia.

James Joseph Fleming, New York; Yale University School of Medicine, New Haven, 1922; formerly assistant professor of clinical surgery at the New York Post-Graduate Medical School, Columbia University; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; served as attending surgeon, New York City Department of Correction; assistant attending surgeon at the New York Post-Graduate Hospital, where he died April 16, aged 47.

Henry Francis Goeken, Baltimore; Hahnemann Medical College and Hospital of Philadelphia, 1921; member of the Medical Society of the State of Pennsylvania; served during World War I; formerly on the staff of the Hanover Hospital, Hanover, Pa.; died in St. Joseph's Hospital April 16, aged 52, of acute coronary occlusion.

Ralph Augustus Hatch ☉ Boston; Harvard Medical School, Boston, 1906; specialist certified by the American Board of Ophthalmology; member of the New England Ophthalmological Society; served during World War I; on the staffs of the Massachusetts Eye and Ear Infirmary, Massachusetts General, Children's and Boston State hospitals and the Florence Crittenton Home and Hospital; died in the Brookline Hospital, Brookline, April 1, aged 62.

Vernon Francis Kelly, Baltimore; University of Maryland School of Medicine, Baltimore, 1904; on the staffs of St. Ann's and St. Joseph's hospitals; died in the Johns Hopkins Hospital, March 5, aged 60, of coronary occlusion.

Lincoln S. Lacy, Pittsfield, Ill.; Missouri Medical College, St. Louis, 1898; member of the Illinois State Medical Society; served several terms on the city council; on the staff of the Illinois Community Hospital; died April 10, aged 83, of carcinoma of the liver.

Lucius Edgar Lawler, Miami, Fla.; Atlanta College of Physicians and Surgeons, 1901; died April 8, aged 71, of atherosclerosis.

Alice Farnham Leader, Winter Park, Fla.; Woman's Medical College of Pennsylvania, Philadelphia, 1884; died in the Florida Sanitarium and Hospital, Orlando, April 20, aged 81, of myocardial infarction.

Oscar Clare Lohr, Churdan, Iowa; Barnes Medical College, St. Louis, 1896; member of the Iowa State Medical Society; vice president of the First State Bank; died in Jefferson April 9, aged 71, of coronary thrombosis.

Harold Hamilton Longsdorf, Dickinson, Pa.; College of Physicians and Surgeons, Baltimore, 1882; member of the Medical Society of the State of Pennsylvania; served as school director and past president of the Cumberland County School Directors Association; physician for the county prison for many years; a director of the Farmers Trust Company at Carlisle; on the staff of the Carlisle Hospital, Carlisle; died April 28, aged 85, of cerebral hemorrhage.

Arthur Hubert Longstreet, Brooklyn; University of Vermont College of Medicine, Burlington, 1900; member of the Medical Society of the State of New York; served on the staffs of the Norwegian, Victory Memorial and Bay Ridge hospitals; died April 4, aged 71, of heart disease.

George Davis Lowry ♂ Detroit; College of Physicians and Surgeons, New York, 1894; member of the Ohio State Medical Association; formerly a member of the staff of Peiping Union Medical College and of the Methodist Hospital in Peking, China; served as physician at the Ohio Wesleyan University, Delaware, Ohio; died in the Toledo Hospital, Toledo, Ohio, April 9, aged 76, of a fractured skull received in an automobile accident.

Edward Joseph Lynch, Detroit; St. Louis University School of Medicine, 1913; member of the Michigan State Medical Society; served in the medical corps of the U. S. Army during World War I; on the staff of St. Joseph's Mercy Hospital; died April 18, aged 59, of cerebral hemorrhage.

Frederick L. Lyons, Boston (licensed in Massachusetts in 1909); served on the staffs of the Carney Hospital and St. Elizabeth's Hospital, where he died April 28, aged 58, of coronary thrombosis.

James Lewis McAuslan, North Grafton, Mass.; Harvard Medical School, Boston, 1899; member of the Massachusetts Medical Society, American Psychiatric Association and the New England Society of Psychiatry; specialist certified by the American Board of Psychiatry and Neurology, Inc.; served during World War I; senior physician at the Grafton State Hospital from 1919 to 1943; died in Boston March 22, aged 69, of angina pectoris.

John Thomas McFarlin, Williams, Ind.; University of Louisville (Ky.) Medical Department, 1894; member of the Indiana State Medical Association; past president of the Lawrence County Medical Society; served during World War I; died in the Dunn Memorial Hospital, Bedford, April 18, aged 76, of chronic myocarditis.

Frank Lynn McGahey, Calhoun City, Miss.; University of Tennessee College of Medicine, Memphis, 1916; member of the Mississippi State Medical Association; past president of the Northeast Mississippi Thirteen Counties Medical Society; since June 1, 1942 director of Grenada County Health Department; formerly health officer of Calhoun County; died in a hospital at Memphis, Tenn., April 22, aged 51, of cerebral hemorrhage.

Frank Wickham Mallalieu, Jersey City, N. J.; Columbia University College of Physicians and Surgeons, New York, 1896; for many years associated with the child welfare service of the Mother's Institute; found dead April 12, aged 75, of heart disease.

August Albert Meyer, Alma, Kan.; University Medical College of Kansas City, Mo., 1904; also a pharmacist; county health officer; died March 19, aged 67, of carcinoma.

Gustavus Adolphus Meyer, Springfield, Mo.; St. Louis College of Physicians and Surgeons, 1895; Barnes Medical College, St. Louis, 1897; died April 2, aged 81, of coronary thrombosis and bronchopneumonia.

Gilbert Bertram Meyers ♂ Pittsburgh; University of Pittsburgh School of Medicine, 1917; assistant professor of medicine at his alma mater; served as a lieutenant in the medical corps of the U. S. Navy during World War I; senior staff member of the Mercy Hospital, where he died April 9, aged 54, of cerebral hemorrhage.

William Rankin Miller, Danville, Ill.; Western Pennsylvania Medical College, Pittsburgh, 1892; for seven years contract physician for the Pittsburgh Steel Company; died in the Lakeview Hospital April 5, aged 77, of cerebral hemorrhage.

Landon Clay Moore, Reynolds, Ill.; Rush Medical College, Chicago, 1886; member of the Illinois State Medical Society;

member of the "Fifty Year Club" of the state society; formerly on the staff of St. Luke's Hospital, Davenport, Iowa; died in the Mercy Hospital, Davenport, April 10, aged 84, of uremia and chronic nephritis.

Amanda Taylor Norris, Baltimore; Woman's Medical College of Pennsylvania, Philadelphia, 1880; member of the Medical and Chirurgical Faculty of Maryland; died in a nursing home in Pikesville April 27, aged 95, of arteriosclerosis.

John Palkovich, Hammond, Ind.; University of Kolozsvár, Hungary, 1894; died April 21, aged 81, of acute dilatation of the heart and myocarditis.

Joseph Baxter Patrick, Brunswick, Ga.; Kentucky University Medical Department, Louisville, 1904; member of the Mississippi State Medical Association; on the staff of the J. A. Jones Construction Company Clinic and chief medical inspector for the company; died April 5, aged 64, of heart disease.

Hans Arthur Paulsen, Chicago; Chicago College of Medicine and Surgery, 1912; member of the Illinois State Medical Society; on the courtesy staff, Martha Washington Hospital, where he died April 11, aged 58, of acute nephritis.

Percival Pearce, Waukegan, Ill.; College of Physicians and Surgeons of Chicago, 1896; for many years a druggist; died May 16, aged 76, of cerebral hemorrhage.

Thomas Francis Xavier Phelan, Chicago; Loyola University School of Medicine, Chicago, 1917; on the staff of St. Anne's Hospital; died May 10, aged 58, of coronary thrombosis.

Edward Ferguson Pickford ♂ Washington, D. C.; Albany (N. Y.) Medical College, 1895; served as vice president of the City Bank; on the courtesy staffs of all local hospitals; died May 6, aged 75, of cerebral hemorrhage.

Eugene H. Pitts ♂ Sacramento, Calif.; Chattanooga (Tenn.) Medical College, 1900; served as president of the Eugenics Society of Northern California; honorary member, Sociedad Eugenesia de Mexico; member of the American Genetic Association and the Eugenics Society of Great Britain and London; on the staffs of the Sutter General and Mercy hospitals; for many years a director of the Y. M. C. A.; died May 1, aged 73.

Archie Leonard Popplewell, Anton, Texas; Baylor University College of Medicine, Dallas, 1912; member of the State Medical Association of Texas; died in the Littlefield Hospital and Clinic, Littlefield, March 22, aged 56, of coronary thrombosis.

Edwards Hyndshaw Porter ♂ Tiffin, Ohio; Detroit College of Medicine, 1900; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; past president of the Northwestern Ohio Medical Association; served during World War I; chief of staff, Mercy Hospital, where he died May 14, aged 71, of coronary occlusion.

James Miller Quinn ♂ Passed Assistant Surgeon, Lieutenant Commander, U. S. Navy, retired, Beckley, W. Va.; Baltimore Medical College, 1911; U. S. Naval Medical School; entered the U. S. Navy in 1917; served during World War I; retired Dec. 5, 1921; died January 18, aged 55.

John F. Reid, Buchanan, Ga.; Atlanta Medical College, 1892; member of the Medical Association of Georgia; served as mayor of Buchanan; represented Haralson County in the state legislature for two terms; county treasurer; died in Carrollton April 3, aged 75, of cardiovascular renal disease.

Fred Rice, Lancaster, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; died in St. Joseph's Hospital April 23, aged 68, of a skull fracture and injuries received when struck by a truck.

Nelson Guernsey Richmond, Fredonia, N. Y.; Bellevue Hospital Medical College, New York, 1880; member of the Medical Society of the State of New York; died in the Florida Sanitarium and Hospital, Orlando, April 18, aged 87, of lobar pneumonia.

Norman Roberts ♂ Surgeon, U. S. Public Health Service, retired, West Chester, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; Hahnemann Medical College and Hospital of Philadelphia, 1898; U. S. Naval Medical School, 1922; appointed an assistant surgeon in the U. S. Public Health Service on July 25, 1903 and retired on Dec. 9, 1930; died in the Chester County Hospital April 18, aged 67, of acute congestive cardiac failure.

Leo Saporito, Kaplan, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1908; member of the Louisiana State Medical Society; a member of the draft board during World War I; formerly coroner of Vermilion Parish; died April 13, aged 61, of coronary thrombosis.

Raymond J. Schmid ♂ New Ulm, Texas; University Medical College of Kansas City, Mo., 1901; past president

of the Austin County Medical Society; died March 22, aged 67.

John William Schulze, Minneapolis; University of Minnesota Medical School, Minneapolis, 1943; served a residency at the Minneapolis General and the Fairview hospitals; died in the University Hospitals February 2, aged 26, of hypostatic bronchopneumonia.

Clark Edwards Sharp, Columbus, Ohio; Starling Medical College, Columbus, 1896; member of the Ohio State Medical Association; a captain in the medical corps of the U. S. Army, serving for a time at Base Hospital number 64, near Verdun, France; died April 2, aged 69, of coronary thrombosis.

George Henry Smith, East Orange, N. J.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1912; member of the Medical Society of New Jersey; a captain in the medical corps of the Canadian Army during World War I and for ten years a major in the reserve; a member of the staffs of St. Michael's Hospital, Newark, St. Mary's Hospital and the Orange Memorial Hospital, Orange, where he died April 15, aged 60, of cerebral thrombosis and heart disease.

George Seeley Smith * Shaker Heights, Ohio; Harvard Medical School, Boston, 1893; formerly associate professor of medicine at the Cleveland College of Physicians and Surgeons; served as examiner for a number of life insurance companies; died in the Charity Hospital, Cleveland, April 8, aged 77, of edema of the lungs, following an operation.

Harvey Smith, Spokane, Wash.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1897; member of the Washington State Medical Association; on the staffs of the Sacred Heart Hospital and the Deaconess Hospital, where he died March 29, aged 70, of carcinoma.

Leonard Marshall Smith * Oshkosh, Wis.; Northwestern University Medical School, Chicago, 1926; entered the Mayo Foundation, Rochester, Minn., as a fellow in surgery Oct. 1, 1926 and in October 1929 was appointed first assistant in surgery; served during World War I; fellow of the American College of Surgeons; on the staff of the Mercy Hospital; died April 13, aged 47.

William Sidney Smith * Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1905; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; a captain in the medical corps of the U. S. Army during World War I; fellow of the American College of Surgeons; past president of the New York and Brooklyn Obstetrical societies; chief attending gynecologist and obstetrician, Brooklyn Hospital; died April 18, aged 61, of coronary disease.

Clinton J. Sprinkell, Russellville, Ill.; Hospital College of Medicine, Louisville, Ky., 1900; member of the Illinois State Medical Society; died April 21, aged 71, of heart disease and tabes dorsalis.

Oscar Wayne Sprouse, Sulphur, Okla.; Barnes Medical College, St. Louis, 1903; died February 24, aged 71.

Warren L. Stamper, Indianapolis; Kentucky School of Medicine, Louisville, 1892; also a dentist; died April 2, aged 73, of cerebral hemorrhage.

Chester Arthur Stebbins, Lexington, Ky.; Barnes Medical College, St. Louis, 1911; served in the medical corps of the U. S. Army during World War I; died April 10, aged 60, of asthma.

Carl Floyd Stevens, North Hollywood, Calif.; Medical College of Virginia, Richmond, 1940; member of the California Medical Association; died March 1, aged 50.

Sardine Graham Stone, Nanafalia, Ala.; Medical College of Alabama, Mobile, 1887; member of the Medical Association of the State of Alabama; died in Folly April 7, aged 77, of congestive heart failure, hypertension and arteriosclerosis.

Benson R. Sumner, Armada, Mich.; Detroit College of Medicine, 1902; a captain in the medical corps of the U. S. Army during World War I; for many years on the staff of the Providence Hospital, Detroit; died April 10, aged 72, of coronary occlusion and heart block.

Fred Traganza, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1894; Baltimore Medical College, 1895; member of the Medical Society of the State of Pennsylvania; died March 24, aged 73.

George C. Trimble, East Point, Ga.; Atlanta Medical College, 1888; member of the Medical Association of Georgia; served as city physician and on the East Point Council; formerly in charge of the Georgia Baptist Orphanage; for many years local surgeon for the Central of Georgia Railway; died April 9, aged 80, of heart disease and diabetes mellitus.

Harmon Albert Vedder, New York; College of Physicians and Surgeons, New York, 1891; served during World War I;

died in St. Luke's Hospital April 5, aged 76, of pulmonary edema.

Joseph Frederick Wood * Portland, Ore.; University of Oregon Medical School, Portland, 1900; fellow of the American College of Surgeons; formerly secretary and member of the Board of Medical Examiners; died May 17, aged 67.

William Henry Lee Woodyard, Judsonia, Ark.; Memphis (Tenn.) Hospital Medical College, 1894; local surgeon for the Missouri Pacific Railroad; for many years president of the Farmers and Merchants Bank; died March 26, aged 78, of coronary occlusion.

Homer Woolery, Bloomington, Ind.; State College of Physicians and Surgeons, Indianapolis, 1907; member of the American Academy of Pediatrics; served during World War I; died in Hollywood, Fla., April 22, aged 71, probably of coronary thrombosis.

DIED WHILE IN MILITARY SERVICE

John Jacob Bortz, Allentown, Pa.; Temple University School of Medicine, Philadelphia, 1930; member of the Medical Society of the State of Pennsylvania; served as an examining physician at the Allentown Induction Center; a member of the staff of the Sacred Heart Hospital; commissioned a captain in the medical corps, Army of the United States, on Oct. 16, 1942; began extended active duty on Oct. 31, 1942; died in San Francisco May 21, aged 40.

Henry Thomas Davis Jr., Galveston, Texas; Howard University College of Medicine, Washington, D. C., 1937; formerly assistant in pathology at his alma mater; served an internship at the Freedmen's Hospital, Washington, D. C., and a residency at the Flint-Goodridge Hospital of Dillard University, New Orleans; a first lieutenant in the medical reserve corps of the U. S. Army; died in the Fitzsimons General Hospital, Denver, March 31, aged 32, of pulmonary tuberculosis.

Sidney Chase Graves * Milton, Mass.; Harvard Medical School, Boston, 1929; fellow of the American College of Surgeons; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; member of the New England Obstetrical and Gynecological Society and the Boston Obstetrical Society; formerly assistant in gynecology at his alma mater; served as assistant visiting surgeon to the Free Hospital for Women, Brookline; commissioned a lieutenant commander in the medical corps of the U. S. Naval Reserve, July 20, 1942; began extended active duty on Sept. 18, 1942 at the U. S. Naval Hospital in Chelsea; died in the Pacific area May 14, aged 42, from a knife wound of the neck.

Alexander Vayle Harrison, San Pedro, Calif.; University of Oklahoma School of Medicine, Oklahoma City, 1939; served an internship at the Los Angeles County Hospital, Los Angeles; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on June 6, 1939; began extended active duty on Nov. 18, 1940; later promoted to captain; died in New Britain March 4, aged 29, of scrub typhus.

* **Jack Robert Hughes** * Captain, M. C., U. S. Army. San Francisco; Stanford University School of Medicine, San Francisco, 1941; commissioned a first lieutenant in the medical corps of the U. S. Army; began active duty on July 3, 1941; later promoted to captain; died in the Percy Jones General Hospital, Battle Creek, April 29, aged 30, of intestinal obstruction, adhesions due to gastric resection performed for peptic ulcer.

Edgar David Riley, Terrell, Texas; Baylor University College of Medicine, Dallas, 1937; member of the State Medical Association of Texas; served on the staff of the Alexander Hospital; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on May 31, 1937; medical reserve corps; began extended active duty at later promoted to captain; began extended active duty at Camp Berkeley, Jan. 22, 1941; served as chief surgeon in a field hospital in India for sixteen months; died in the Brooke General Hospital, Fort Sam Houston, February 17, aged 33, of brain tumor.

David Earl Vogan Jr., Mercer, Pa.; University of Pittsburgh School of Medicine, 1942; served an internship at the Presbyterian Hospital, Pittsburgh; commissioned a first lieutenant in the medical corps, Army of the United States, on June 1, 1942; began active duty on July 3, 1943; died in New Guinea April 29, aged 25, of acute hemorrhagic purpura.

Bureau of Investigation

TWO CALIFORNIA RHEUMATISM FRAUDS

One from San Francisco—"Unipathic" Nostrums

The "Unipathic Medicines," recommended chiefly for arthritis, were sold through the mails from San Francisco by the Maxwell Sales Company, whose manager was a J. W. Spiker. These promoters, on learning that the Post Office Department was investigating their scheme, wrote that department in June 1943 that they were discontinuing their business and offered to agree in writing to do so, apparently hoping to avoid the issuance of a fraud order, which would debar them from using the mails. The Department refused the offer and set a time for the hearing on the charge of using the mails to defraud. On the date set, a government chemist testified that his analysis of the seven Unipathic nostrums showed the following:

"R No. 1," labeled as a "diuretic alterative stomachic tonic"—a brownish red solution of alcohol (21 per cent), saw palmetto, stillingia root, black cohosh, poke root and sherry wine, but lacking the aconite declared on the label

"R No. 2," labeled as a laxative—yellow-coated tablets containing belladonna, cascara, aloin, podophyllin and ginger.

"R No. 3," labeled as a rubbing oil—about equal amounts of turpentine, kerosene and paraffin oil, with wintergreen odor.

Unipathic Tablets, R A, B, C and D, averaged 99.5 per cent of milk sugar, traces of starch and infinitesimal amounts, if any, of the various drugs of the homeopathic type, too numerous to detail here, that were claimed on the label.

Another government witness, an authority on homeopathic medicine, testified, among other things, that the two general types of arthritis, specific and nonspecific, would not respond to the treatment in question, since the proper therapy must be based on the individual patient and his need, and hence no single type of treatment would suffice in all cases. The Post Office Department accordingly issued a fraud order on Oct. 5, 1943 against the Maxwell Sales Company, J. W. Spiker, Manager, and their officers and agents.

On Oct. 9, 1935 a jury in a California district federal court found Joseph W. Spiker, Frank W. Kimball and the Melatol Laboratories of Oakland, Calif., guilty of violating the National Food and Drugs Act, and a total fine of \$1,200 and costs was imposed. The case involved the shipping in interstate commerce of a consignment of "Melatol," the package and enclosed circular of which falsely and fraudulently represented the nostrum (which was nothing but crude oil) as a remedy for diabetes, stomach ulcer, Bright's disease and some other disorders. In October 1936 the California authorities reported that J. W. Spiker once had done business under the name "National Diabetic Clinic" but was then (1936) associated with a San Francisco outfit variously called the Mellow Tablet Company, the San Francisco Mel-O-Tab and the Mel-O-Tab Laboratories, putting out "Mel-O-Tabs" for stomach ulcer and "Naz-ol for Catarrh, Sinus, Asthma and Hay Fever."

And from Los Angeles—"A B C" Nostrums

Los Angeles, the happy hunting ground for many types of quackery in medicine, religion and politics, was the home of a concern operating under the names "American Mutual Health Association" and "ABC Preparations Company," with one R. P. Probasco designated as general manager. Through the mails they sold what they called "A B C Preparations" which, when taken singly or together, according to directions, in conjunction with "diet charts" and "instruction sheets," were represented to "go to the root of" and permanently "eradicate" and "cure" all forms of rheumatism, sciatica and arthritis; this, regardless of the supposed hopelessness of the case or the fact that the customer had previously tried "everything" without benefit. Further, these products were represented to overcome high blood pressure and kidney, bladder and prostate disorders.

And what were these "cures," promoted by extravagant claims and glowing testimonials? At the hearing of the case, held on July 26, 1943, a chemist of the Food and Drug Administration testified for the government that "Preparation A" was chiefly water, with less than 1 per cent each of hydrochloric and nitric acids; that "B" contained 36 per cent of alcohol and small

amounts of Jamaica dogwood and cimicifuga, and that "C," in powder form, was a mixture of phenolphthalein, senna, sulfur and cream of tartar.

Another government witness, a physician who has had experience in the treatment of arthritis and allied conditions and of the other diseases and symptoms described in the "A B C" advertising, testified as to causes and manifestations of arthritis, as well as other painful chronic diseases which are sometimes confused with it. He showed that different cases of arthritis may present varying degrees of inflammation, swelling, deformity and pain, according to the age, weight and other conditions of the patient, and also are influenced by weather and climatic conditions, as well as the complications of accompanying diseases. In many cases, he testified, the symptoms of arthritis may disappear entirely with the medication or change of diet, whereas in others they may become worse, regardless of treatment. Certainly, he said, there is no one treatment suitable for all of the many forms and conditions of this disorder, and the proper therapy must be based on the causative condition. Some cases require exercises, others rest, some a reducing diet and others a strengthening diet, whereas some call for surgery. He showed that there are no known drugs which will repair the damage done by arthritis to the bones and cartilage of the joints. The witness also discussed the other claims for the preparations, and the presumable actions of the latter as based on their respective compositions, and revealed the worthlessness of the formulas for the conditions in question. The respondents neither put in an appearance nor sent their attorney to represent them at the hearing. The Post Office Department found that the business was a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, in violation of the laws of the United States, and on Nov. 24, 1943 a fraud order was issued, debarring from the mails the American Mutual Health Association, ABC Preparations Company, R. P. Probasco, and their officers and agents.

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

Following are abstracts of stipulations in which promoters of "patent medicines," medical devices and cosmetics have agreed, following action by the Federal Trade Commission, to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products:

"Formula Book" and "Brains Boiled Down."—These were titles of publications issued by Ernest L. Fantus, trading as Elfoo Service, Chicago, and contained formulas for various disorders. In May 1943 Fantus stipulated with the Federal Trade Commission that he would cease representing that products compounded in accordance with his formulas designated "Eczema Remedy," "Croup & Pneumonia Salve—Vapor Jelly for Inhalation," "Skin Lotion for Pimples, Blackheads, Etc." and "To Prevent Hair Falling Out" are effective treatments for the conditions indicated in those names. Previously Fantus had issued a booklet entitled "Scherl's System of Beauty Culture," which also contained formulas, and on Nov. 24, 1948, he stipulated with the Federal Trade Commission that he would cease representing that products compounded from these recipes would insure perfect skin, cure dandruff, promote hair growth, remove superfluous hair and freckles, keep arms white as snow and make hands soft and velvety.

Modern Eyes Mascara.—That this is the fastest selling brand of mascara and, when applied with the spiral brush which accompanies it, will coat all sides of the eyelashes rather than the under side only, were misrepresentations which Modern Cosmetics, Inc., of Chicago agreed to discontinue in its advertising in a stipulation that it entered into with the Federal Trade Commission in May 1943.

Vitamin-Quota.—This is put out by the Associated Laboratories, Inc., Long Island City, N. Y. In May 1943 this concern stipulated with the Federal Trade Commission to discontinue advertising misrepresentations that it is impossible or extremely difficult to obtain adequate intake of vitamins from ordinary foods, that conditions such as vague aches and pains, fatigue, lack of resistance to colds, nervousness, poor appetite, poor digestion, or lack of energy are necessarily symptomatic of vitamin deficiencies, and that the ingestion of Vitamin Quota capsules will relieve, remedy or correct such conditions or result in a superior state of health.

Correspondence

FAILURE OF THE SWEAT MECHANISM IN THE DESERT

To the Editor:—It was with interest that we read Captains Wolkin, Goodman and Kelley's article "Failure of the Sweat Mechanism in the Desert: Thermogenic Anhydrosis" (*THE JOURNAL*, February 19, p. 478). The reason for our interest is that we have observed 2 patients who presented the same syndrome. These men, however, were not subjected to the hot dry climate of the desert but to the hot highly humid climate of the South Pacific.

The first patient who came to our attention was a cook who had been in the tropics about seven months, where the temperature is high and the humidity is constantly near the saturation point. In addition to being exposed to this extreme heat, he carried out his duties as a cook. He was in good health and sweated in a normal fashion for the first six months. Then he noticed that in a short time he stopped sweating from the neck down and developed a dry scaliness of the skin. Associated with this was generalized weakness. Examination at this time showed a striking distribution of sweating. The day of examination was extremely hot, so that all of the examiners and the people in the dispensary were sweating profusely. This man was sweating in the same manner only about the head and neck. At the base of the neck the sweating stopped abruptly. The rest of the body was dry. Examination of the axillas and inner aspects of the groins showed the skin likewise perfectly dry. The skin presented a nondescript, dry, scaling, slightly erythematous eruption. There was no evidence of ichthyosis. He appeared weak and pale. Physical examination otherwise revealed nothing of importance. He was sent to a hospital in a cooler climate. On examination there nothing unusual was found. After two weeks of rest he began to sweat normally.

The second patient also was in the same type of climate; namely, hot and highly humid. He had no particular difficulties for the first four months; then he began to notice weakness while working and the appearance of a dry, scaly eruption and soon after this the failure to sweat. Because of the weakness that he developed on the slightest exertion he also was sent to a hospital in a cooler climate. Examination there showed nothing unusual except the anhydrosis. After three weeks of rest he was sweating normally and felt much stronger.

These 2 cases follow closely those described by the authors, with spectacular sweating of the face and neck, which stops abruptly, the rest of the body remaining dry. The eruption over the body is very similar to the stationary "goose flesh" that they describe: in other words, a dry papulofollicular, nonerythematous eruption. We were unfortunately unable to study their cases further. We feel that the authors have described a unique form of anhydrosis and that our patients also fall into this group.

The one difference between their patients and ours is that of climate. Their patients were subjected to extreme desert heat with low humidity, and ours to tropical heat with high humidity. It would seem, therefore, that only the high temperature plus some unexplained failure of the sweat mechanism are the principal factors in bringing out this syndrome.

Undoubtedly, with more troops being subjected to high temperatures over long periods of time, more of these cases will be seen. The only apparent treatment is removal to a cooler climate.

Further investigation as to the cause of this form of anhydrosis should be carried out.

FREDERICK G. NOVY JR.,

Lieutenant Commander, MC-V(S), U.S.N.R.

JOSEPH H. RAMSEY,

Lieutenant, MC-V(G), U.S.N.R.

SUGAR A "DILUTING" AGENT

To the Editor:—The Council on Foods and Nutrition (*THE JOURNAL*, Nov. 7, 1942, p. 763) gave as its view that "the consumption of sugar and of other relatively pure carbohydrates has become so great during recent years that it presents a serious obstacle to the improved nutrition of the general public." It was emphasized that refined sugar is a food deprived of vitamins and minerals; however, "if sugar could be always used only as a means of making highly nutritious foods like milk or whey more appetizing, much less odium would attach to it than does. . . . But even here one is essentially 'diluting with calories' the food which is sweetened."

The Council thus presents the concept of sugar "diluting with calories" the foods of our dietary. It seems we should study the full meaning of this concept, what it implies and note some of the biochemical events it involves as they appear to be related to our national health and war effort.

From the Council report it is made clear that when sugar is "diluting with calories" it is displacing nutritionally superior foods from the dietary, while at the same time it is increasing the requirements of nutrients in the foods displaced. Vitamins B₁, riboflavin and niacin are necessary for the oxidation of dextrose. Sugar does not supply these vitamins, yet it increases their requirements. When "diluting with calories" sugar is thus using vitamins from other foods or from the reserves of body tissues. Wilder (*Handbook of Nutrition*, *THE JOURNAL*, Oct. 17, 1942, p. 531) expressed the idea in these words: "Sugar is not among the recommended foods. Its recent rationing will not provoke a hardship, for sugar supplies nothing in nutrition but calories, and the vitamins provided by other foods are sapped by sugar to liberate these calories."

Cowgill (*THE JOURNAL*, Dec. 9, 1939, p. 2151) pointed out that there is an increased requirement of other food essentials like calcium, phosphorus and iron with an increase of calories. We may say, then, that sugar "diluting with calories" decreases the vitamin (or other nutrient)/calory ratio and increases the difficulty of obtaining a diet nutritionally adequate to meet the daily allowances recommended by the Food and Nutrition Board of the National Research Council (*THE JOURNAL*, June 7, 1941, p. 2601).

Little concern would be felt for the role of sugar as a "diluent" of foods and nutrients and a "sapper" of stored vitamins if only about 1 ounce (120 calories) per person daily were consumed, as was the case a hundred years ago. However, according to Gubin (*Hygeia*, January 1944, p. 15), the monthly per capita civilian consumption of sugar as food for 1935-1939 averaged 8 pounds (or 483 calories per person daily); for 1942 it was 7½ pounds (452 calories daily); for 1944 it is estimated to average 6½ pounds (or about 400 calories per person daily).

Four hundred calories of sugar consumed by a person on a diet of 2,000 calories represents a "dilution" with calories of 20 per cent. The diets of many people contain less than 1,800 calories per day; as, for example, 8.8 per cent of the aircraft workers in southern California (Wichl, Dorothy G.: *Milbank Memorial Fund Quart.* 20, October 1942). Even on a 4,000 calory diet the 400 calories of sugar dilutes the nutrients 10 per cent. Probably if the 400 calories of sugar were supplied by superior foods, all the nutrients would be more "concentrated" in the diet by 10 or 20 per cent, depending on whether the diet contained 4,000 or 2,000 calories.

It may sound superficial to say that "diluting" our food with this great consumption of sugar is "diluting" the physical strength, national unity and war effort of our country, yet the Council on Foods and Nutrition of the American Medical Association (*THE JOURNAL*, Nov. 7, 1942), the Committee on Nutrition in Industry of the National Research Council (Report and Circular Series No. 110, April 1942) and members participating in the Symposium on Nutrition in Industry at the Annual Congress on Industrial Health (e. g. see discussion).

Wilder and of Pett, *THE JOURNAL*, March 13, 1943, pp. 869-871) have already expressed concern over the consumption of sweetened carbonated beverages and candy by workers in industrial plants.

It seems to me that more publicity should be given to this concept of sugar as a "diluting" agent; and more research is needed to find out the extent of harm our present consumption of sugar is causing.

Our patients and the general public must be made to realize that, while sugar supplies energy, it also "dilutes," weakens with calories, and that other carbohydrates and all proteins and fats are sources of energy.

RAY M. MOOSE, M.D., San Bernardino, Calif.

DIAGNOSIS OF EARLY SYPHILIS

To the Editor:—Clinical teaching has always stressed the fact that a painless sclerotic solitary ulcer or "hard chancre" is the typical primary lesion of syphilis. While it is true that all textbooks and teachers allow for some variation in the clinical appearance of the initial local sore, my personal observation is that its characteristics, somewhat like those of later syphilitic manifestations, are more protean than is generally considered by our profession.

In several years of both military and private practice I have had occasion to see relatively few cases of early syphilis. But of 11 cases that my associates and I were able to confirm positively by dark field examinations only 3 presented the classic type of primary lesion. The 8 others resembled ordinary chancroidal or balanitic ulcerations; they were not indurated, often were multiple and sometimes were painful. The most recent case in my personal experience was almost, and perhaps hardly inexcusably, overlooked as syphilitic, for the patient presented the typical picture of an ordinary nonspecific balanoposthitis complicating a phimosis with several tender ulcerated areas on the preputial mucosa and, furthermore, he maintained that he had had the same condition several times in the past. Only the history of recent exposure prompted me to have a dark field examination made, and it was quite a surprise to receive a laboratory report that the smear was found teeming with *Treponema pallidum*.

This naturally brings to mind the important question How many of the latent or advanced cases of syphilis we find were not detected in their early, more easily treated, stage simply because the primary lesion was so atypical or minor as not even to suggest the ruling out of syphilis to the examiner? If the threat of syphilis to mankind is to be further reduced, not only must a high "index of suspicion" be maintained on the part of the individual practicing physician but an abrupt *volte face* is in order on the part of our clinical teachers to emphasize duly the varied appearance of initial syphilitic lesions. Only thus can the practitioners of medicine be influenced to subject each and every clinical case presenting a genital ulcer of any description to the trustworthy oracle of the dark field laboratory examination.

JEROME M. SPATZ, Captain, M. C., A. U. S.

JONATHAN FOLTZ, M.D., SURGEON GENERAL OF THE NAVY

To the Editor:—On page 278 of the May 27 issue of *THE JOURNAL* there is an editorial comment on the recent celebration of the Lancaster city and county medical societies. It speaks of Dr. Jonathan M. Foltz as being Surgeon General under President Grant. Dr. Foltz was Surgeon General of the U. S. Navy, and I am sure there was a Surgeon General of the U. S. Army at the same time, so that this branch of the service should have been designated. I happened to notice this because in

writing up my grandfather's diary I used a biography of Dr. Foltz, who during the Civil War was ship surgeon on Farragut's flag ship while my grandfather was paymaster on one of the other vessels in the same fleet.

STANLEY B. WELD, M.D., Hartford, Conn.
Managing Editor, *Connecticut State Medical Journal*.

BILATERAL OOPHORECTOMY WITH RADICAL OPERATION FOR CANCER OF THE BREAST

To the Editor:—Your editorial on "Bilateral Oophorectomy with Radical Operation for Cancer of the Breast" in the May 20 issue, was interesting.

Oophorectomy may favorably influence the control of mammary cancer, but such a blunt statement is not desirable at present without an adequate number of cases with sufficient length of follow-up, as it may lead to premature conclusions. Can one judge on the observation of 1 case of mucoid cancer in a series of 25 cases out of which only 2 had a five year follow-up period?

In an earlier article on "Mammary Cancer of Youth" (*Surg., Gynec. & Obst.* 77:55 [July] 1943) 73 cases of breast cancer under the age of 30 years were reviewed. The records of these patients were collected from six leading hospitals of New York and Boston, with follow-up periods over five and ten years. From this study it was learned that the previously held belief that the prognosis for women with breast cancer under 30 years of age is fatal is untenable. Results in such younger groups could be favorably compared to the general series (Eggers, Carl; de Cholnoky, Tibor, and Jessup, D. S. D.: *Ann. Surg.* 113:321 [March] 1941).

The five year survival was found to be 40.8 per cent and the ten year arrest 37 per cent in all cases in which operation was performed. Included in this series is a patient 23 years of age with bilateral breast cancer. She gave birth to a child five years after the first radical operation and a year after that had a radical operation for cancer of the other breast. This patient is well twelve years after the original operation.

In patients with small tumors less than 2 centimeters in diameter lymph node involvement was rarely found. Among these patients 10 out of 11 survived the five year period, although no oophorectomy or x-ray castration was performed.

Early diagnosis, therefore, is imperative when dealing with small solid tumors. Often this can be made only by a frozen section. In such cases oophorectomy may be omitted, even if further observations on a larger series with a longer follow-up period should indicate its beneficial influence.

Endocrine influence on tumor formations is a possibility, and it was also mentioned in one of our articles (*Arch. Surg.* 38:79 [Jan.] 1939). It is not exactly known as yet whether the elimination of ovarian function alone could reduce carcinogenesis or promote cancerous growth. At present it may be hasty to advocate oophorectomy in all cases of early breast cancer in the premenopausal stage. Clinical evidence with few recurrences points to satisfactory results following a carefully performed radical operation, after which no "small amount" of cancer cells should remain which could be stimulated by estrogenic substances. Additional mutilating operations therefore ought to be limited to more advanced cases with metastasis or recurrent lesions until further well controlled investigations confirm the beneficial effect of bilateral oophorectomy in breast cancer.

Finally I would like to point out the statement in the editorial that "mucoid cancer . . . probably arises from the stroma. . . ." This is obviously a mistake.

TIBOR DE CHOLNOKY, M.D., New York.

Council on Medical Education and Hospitals

GRADUATE CONTINUATION COURSES FOR PRACTICING PHYSICIANS

In accordance with the plan of the Council on Medical Education and Hospitals, advance information concerning graduate continuation courses for practicing physicians available in various centers is published semiannually. The following list

consists of courses beginning during the period June 30 through Dec. 31, 1944. It is hoped that this material will be useful to physicians seeking opportunities for postgraduate work. Physicians called on to assume new responsibilities because of the war and physicians who are returning to practice may find here listed courses which will be of help to them. Since many of the classes are necessarily limited, those who contemplate enrolling in any of these courses are urged to communicate as early as possible with the proper executive officer.

Institutions offering continuation courses are invited to announce such courses in these semiannual lists compiled by the Council on Medical Education and Hospitals.

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Graduate Continuation Courses for Practicing Physicians—June 30, 1944–Dec. 31, 1944

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ALLERGY			
(See Also Dermatology and Syphilology)			
Harvard Medical School Courses for Graduates, 25 Shattuck Street, Boston 15, Massachusetts At: Massachusetts General Hospital	Clinical Allergy ²	July 10 thr. 21, 1944, 2 weeks	\$50
Tufts Medical School Postgraduate Division, 30 Bennett Street, Boston 11, Massachusetts	Allergy	Oct. 16 thr. 20, 1944, 5 days	25
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn At: Kings County Hospital, 451 Clarkson, Brooklyn, New York	Allergy	Oct. 13, 1944 for eight Fridays	10
American College of Physicians, 4200 Pine Street, Philadelphia 4, Pennsylvania. At: Roosevelt Hospital, New York, New York	Allergy	Oct. 16 thr. 21, 1944, 1 week	Members 20 Nonmembers 40 ²
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Allergy	Nov. 27 thr. Dec. 15, 1944, 3 weeks full time	200
Columbia University. At Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Allergy in Children Allergy	Oct. 6 thr. Nov. 24, 1944, 7 weeks Oct. 2 thr. Nov. 24, 1944, 8 weeks	25 60
ANATOMY			
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Dissection of Head and Neck ²	Arranged. Part time	per hour 10
	Applied Anatomy of Urogenital System	Arranged. 160 hours	275
	Applied Anatomy of Head and Neck	Arranged. 80 hours	275
	Applied Anatomy of Thorax including Axilla and Pectoral Region	Arranged. 160 hours	275
	Applied Anatomy of Abdomen including Pelvis and Perineum	Arranged. Either sex 160 hrs. Both sexes 200 hrs.	200 300
	Applied Anatomy of Upper Extremities including Shoulder Girdle, Axillae—Surgical	Arranged. 60 hours	115
	Applied Anatomy of Lower Extremities—Surgical	Arranged. 160 hours	200
	Applied Anatomy of Pelvis and Abdomen	Arranged. 160 hours	275
	Applied Anatomy of Orthopedics	Arranged. 160 hours	275
	Applied Anatomy of Ear, Nose and Throat	Arranged. 160 hours	275
	Applied Anatomy of Respiratory Spinal Region and Local Anesthesia	Arranged. 10 days, 20 hours	120
	Rhinolaryngologic (Cadaver) Operations		
ANESTHESIOLOGY			
(See Also Anatomy and Obstetrics and Gynecology)			
Department of Anesthesiology, University of Georgia School of Medicine. At: University Hospital, Augusta, Georgia	Regional Anesthesia General Anesthesia (Inhalation and Intravenous) Clinical Anesthesia	Arranged. 2 weeks Arranged. 2 weeks Given monthly. Arranged	150 150 50
Harvard Medical School Courses for Graduates, 25 Shattuck Street, Boston 15, Massachusetts. At: Boston City Hospital, Harvard Teaching Service and Faulkner Hospital, Boston	Anesthesiology	Dec. 4 thr. 7, 1944, 4 days	15
Tufts Medical School Postgraduate Division, 30 Bennett Street, Boston 11, Massachusetts	Anesthesia	Announced. 2, 6 or 12 days	15, 25, 35
University of Minnesota. At: University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota			

Graduate Continuation Courses for Practicing Physicians—June 30, 1944–Dec. 31, 1944—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn At Kings County Hospital, 451 Clarkson, Brooklyn	Regional Anesthesia	Oct 18, 1944 for 22 sessions, 3 sessions weekly	\$100
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Anesthesia ¹	Sept to Dec 1944, 2 weeks full time	100
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Regional, Spinal, etc Anesthesia Regional Anesthesia ¹	First of any month, 3 months full time Arranged 12 sessions	\$300 = 75 =
ARTHRITIS			
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Arthritis and Allied Rheumatic Disorders	Oct 16 thr 20, 1944, 5 days full time	45
University of Pennsylvania Graduate School of Medicine At Abington Memorial Hospital, Abington, Pennsylvania	Etiology, Pathology, Physiological Deviations and Treatment of Arthritis	Oct thr Dec 1944, Thursday mornings	25
CARDIOVASCULAR DISEASES (See also Diabetes and Electrocardiography)			
California Heart Association, 45 2d Street, San Francisco 5, California At Los Angeles County General Hospital and County Medical Building, Los Angeles, California	Cardiology and Related Fields	Mid November 1944, 2 days	10 15
American College of Physicians, 4200 Pine Street, Philadelphia 4, Pennsylvania At Massachusetts General Hospital, Boston	Cardiology	Oct 2 thr 7, 1944, 1 week	Members 20 Nonmembers 40 ²
Harvard Medical School Courses for Graduates, 25 Shattuck Street, Boston 15, Massachusetts At Beth Israel Hospital, Boston, Massachusetts	Cardiology	Nov 1 thr 30, 1944, 1 month, daily	150
At Peter Bent Brigham Hospital, Boston, Massachusetts	Modern Diagnosis and Treatment of Heart Disease	July 1 thr 29, 1944, 4 weeks, daily	150
Tufts Medical School Postgraduate Division, 30 Bennett Street, Boston 11, Massachusetts	Cardiology	Nov 13 thr 17, 1944, 5 days	25
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn At Israel Zion Hospital, 4802 10th Avenue, Brooklyn, New York	Clinical Cardiology Hypertension and Nephritis Diseases of Peripheral Blood Vessels	Oct 17, 1944 for 4 Tuesdays Oct 18, 1944 for 8 Wednesdays Oct 18, 1944, for 7 Wednesdays	10 10 10
At Jewish Hospital, 555 Prospect Street, Brooklyn, New York	Heart Disease in Childhood	October (arranged) 10 sessions	10
At Kings County Hospital, 451 Clarkson Brooklyn, New York	Peripheral Vascular Diseases	Oct 23 thr 27, 1944, 5 days full time	45
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Cardiology	Oct 30 thr Nov 3, 1944, 5 days full time	45
	Kidneys, Arteries	Nov 9 1944 thr Jan 4 1945, 8 weeks	15
	Peripheral Vascular Diseases	Oct 3, 1944 thr Jan 9, 1945, 15 weeks	35
Columbia University At Mt Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Supplementary Course in Cardiovascular Diseases Advanced Fluoroscopy of Heart and Great Vessels Bedside Clinics in Heart Disease	Oct 11, 1944 thr Mar 21, 1945, 24 weeks Oct 6 thr Dec 22 1944, 13 weeks Oct 2 thr Nov 20, 1944, 8 weeks	75 30 25
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 100th Street, New York, New York	Cardiology	Arranged 30 hours	100
Woman's Medical College of Pennsylvania, Philadelphia 29 Pennsylvania	Clinical Cardiology	Arranged 2 weeks	100
John Sealy Hospital Outpatient Auditorium, University of Texas Medical Branch, Galveston, Texas	Cardiology Clinic	Announced 2 days	None
CHEST DISEASES			
Columbia Presbyterian Medical Center, 650 West 168th Street, New York, New York	Physiologically Directed Therapy in Asthma, Pulmonary Emphysema and Chronic Pulmonary Tuberculosis	Oct 23 thr Nov 4, 1944, 2 weeks, 3 days per week	50
Columbia University At Mt Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Diseases of the Chest (advanced)	Oct 5, 1944 thr Jan 19, 1945	50
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 100th Street, New York, New York	Clinical Pulmonary Diseases	Arranged 1 month	100
Edward 1 Trudeau Foundation and Columbia University At Saranac Lake, New York and 2 week optional course at Bellevue Hospital, New York, New York	Trudeau School of Tuberculosis ¹	Sept 11, 1944, 4 weeks (plus 2 wk optional course following at Bellevue Hosp, N Y C beginning Oct 9, 1944)	100 ²
DERMATOLOGY AND SYPHILOLOGY (See Also Venereal Disease and Physical Therapy)			
University of Minnesota At University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Dermatology	Announced 3, 6 or 12 days	15, 25, 50
	Clinical Dermatology and Syphilology	Arranged, part time 6 weeks 3 months	50 85
	Practical Instruction in Diagnosis and Management of Syphilis	Arranged, part time 6 weeks 3 months	50 85
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Diagnosis and Treatment of Syphilis	Arranged, part time 6 weeks 3 months	30 50
	Practical Instruction in Dermatological Allergy and Immunology	Arranged, part time 6 weeks 3 months	50 85
	X Ray Treatment of Ringworm of the Scalp ¹	Oct 2 thr Dec 29, 1944, 13 weeks, part time	100
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Dermatology and Syphilology	First of any month, 3 months, part time	75 ²
	Dermatology and Syphilology	First of any month, 6 weeks, part time	50 ²
DIABETES			
Harvard Medical School Courses for Graduates, 25 Shattuck Street, Boston 15, Massachusetts At New England Deaconess Hospital	Diabetes	Continuously Arranged	None
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn At Jewish Hospital 555 Prospect Place, Brooklyn, New York	Diabetes	Oct 17, 1944, for eight Tuesdays	10
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Diabetes Mellitus, Nephritis and Hypertension	Dec 11 thr 15, 1944, 5 days, full time	45
University of Pennsylvania Graduate School of Medicine At Philadelphia Hospital, Philadelphia, Pennsylvania	Diabetes Mellitus	Arranged 2 to 4 weeks, 75 hours	150

Graduate Continuation Courses for Practicing Physicians—June 30, 1944–Dec. 31, 1944—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ELECTROCARDIOGRAPHY			
Michael Reese Hospital, 29th St. and Ellis Ave., Chicago 16, Illinois	Electrocardiography	Aug. 21 to Sept. 2, 1944, full time	\$110
Tufts Medical School Postgraduate Division, 30 Bennett Street, Boston 11, Massachusetts	Electrocardiography	Sept. 25 thr. 29, 1944, 5 days	25
Columbia University. At: Montefiore Hospital, East Gun Hill Road, Bronx, New York	Elementary Electrocardiography	Oct. 5 thr. Dec. 28, 1944, 3 months, once a week	35
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn	Electrocardiography	Oct. 9, 1944, twice weekly for 4 weeks	10
At: Jewish Hospital, 555 Prospect Street, Brooklyn, New York	Electrocardiography and Clinical Cardiology	Oct. 17, 1944, three times weekly for 5 weeks	20
University of Michigan Medical School, Ann Arbor, Michigan	Electrocardiographic Diagnosis	Nov. 6 thr. 11, 1944, 6 days	50
At: University of Michigan Hospital	Electrocardiography	Dec. 4 thr. 8, 1944, 6 days, full time	50
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Advanced Electrocardiography	Oct. 6 thr. Dec. 22, 1944, 12 weeks	20
Columbia University. At Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Electrocardiography	Arranged. 15 hours	100
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street, New York, New York	Electrocardiology and Cardiac Roentgenology	Arranged. 5 days, 30 hours	60
University of Pennsylvania Graduate School of Medicine			
At: Philadelphia Hospital, Philadelphia, Pennsylvania			
ELECTROENCEPHALOGRAPHY			
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Clinical Electroencephalography	Dec. 4 thr. 9, 1944, 6 days, full time	60
	Clinical Electroencephalography	Oct. 24 thr. Nov. 21, 1944, 4 weeks, part time	20
Columbia University. At Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Clinical Electroencephalography	Oct. 2, 1944, 30 hours	45
University of Pennsylvania Graduate School of Medicine	Electroencephalography	Arranged. 6 Thursdays, 36 hours	120
At: Graduate Hospital and Pennsylvania Institute, Philadelphia, Pennsylvania			
ENDOCRINOLOGY			
(See Also Obstetrics and Gynecology)			
Tufts Medical School Postgraduate Division, 30 Bennett Street, Boston 11, Massachusetts	Endocrinology	Nov. 6 thr. 10, 1944, 5 days	25
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn			
At: Jewish Hospital, 555 Prospect Street, Brooklyn, New York	Female Sex Endocrinology	Arranged. Oct. 1944, 10 sessions	15
At: Long Island College Hospital, 340 Henry Street, Brooklyn	Endocrine Diseases and Disorders in Children and Adolescents	Oct. 10, 1944, Mondays for 8 weeks	10
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street, New York, New York	Endocrinology	Arranged. 30 hours	110
ENDOSCOPY			
(See Also Urology)			
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Cystoscopy and Endoscopy	Oct. 2 thr. Dec. 23, 1944, 12 weeks, part time	75
Columbia University			
At: New York Eye and Ear Infirmary, 218 2d Avenue, New York 3, New York	Bronchoscopy (work on animals)	Arranged. 2 weeks intensive, or twice weekly for 6 weeks	250
At: Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Gastroscopy	Oct. 2 thr. 13, 1944, 2 weeks	50
At: Columbia-Presbyterian Medical Center, New York 32, New York	Bronchoscopy	Arranged. Oct. thr. Dec. 1944, 3 weeks	250
	Gastroscopy	Arranged. Oct. thr. Dec. 1944, 2 months, 3 times weekly	200
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street, New York, New York	Gastroscopy	Arranged. 30 hours	100
University of Pennsylvania Graduate School of Medicine			
At: University of Pennsylvania Surgical and Anatomical Laboratories, Graduate University, Philadelphia and Mt. Sinai Hospitals, Philadelphia, Pennsylvania	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	Arranged. 2 weeks, 85 hours	250
At: Graduate Hospital, 19th and Lombard Streets, Philadelphia and Presbyterian Hospital, 51 North 39th, Philadelphia	Cystoscopy, Chromo-uretero-scopy and Pyelography	Arranged. 6 weeks, 36 hours	200
FRACTURES			
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street, New York, New York	Fractures and Allied Trauma	Arranged. 40 hours	120
GASTROENTEROLOGY			
(See Also Endoscopy)			
Kansas Medical Society, 112 West 6th Street, Topeka, Kansas	Gastroenterology	Oct. 1944, 1½ days	5
At: 57 areas throughout Kansas			
Harvard Medical School Courses for Graduates, 25 Shattuck Street, Boston 15, Massachusetts	Principles and Practice of Gastroenterology	July 1944, 1 month	100
At: Peter Bent Brigham Hospital, Boston			
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn	Gastroenterology	Nov. 2, 1944, 7 Thursdays	10
At: Beth El Hospital, Rockaway Park and Avenue A, Brooklyn			
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Gastroenterology	Oct. 2 thr. 6, 1944, 5 days, full time	45
	Gastroenterology	Oct. 2 thr. Nov. 24, 1944, 8 weeks	75
Columbia University. At Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Gastrointestinal Disorders	Oct. 3 thr. Dec. 12, 1944, 10 weeks	20
	Physiology of Gastrointestinal Tract	Arranged. 50 hours	75
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street, New York, New York	Peritoneoscopy	Arranged. 1 month	100
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Gastroenterology	Oct. 1, 1944, 6 weeks, part time	40
University of Pennsylvania Graduate School of Medicine			
At: Graduate Hospital, 19th and Lombard, Philadelphia	Clinical Gastroenterology	Arranged. 16 weeks, 560 hours	400
HEMATOLOGY			
(See Also Medicine, General)			
Tufts Medical School Postgraduate Division, 30 Bennett Street, Boston 11, Massachusetts	Hematology C	July 2 thr. 15, 1944, 2 weeks	75
Columbia University. At Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Hematology A	Nov. 13 thr. 17, 1944, 5 days	5
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn	Clinical Hematology (Elementary)	Oct. 2 thr. Nov. 23, 1944, 8 weeks	20
At: Jewish Hospital, 555 Prospect Place, Brooklyn	Clinical Hematology	Oct. 12, 1944, 8 Thursdays	20

Graduate Continuation Courses for Practicing Physicians—June 30, 1944–Dec. 31, 1944—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
INDUSTRIAL MEDICINE			
University of Michigan School of Public Health, Ann Arbor, Michigan	Industrial Health Rehabilitation and Replacement of Industrial Personnel	Announced 3 days to 2 weeks Announced 3 days	....
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Industrial Medicine	Nov. 13 thr. 17, 1944, 5 days, full time	\$45
Columbia University. At: DeLamar Institute of Public Health, 600 West 168th Street, New York 32, New York	Industrial Hygiene	Nov. 13, 1944 thr. Jan. 19, 1945, 3 afternoons per week	40
LEGAL MEDICINE			
Harvard Medical School Courses for Graduates, 25 Shattuck Street, Boston 15, Massachusetts At: Harvard Medical School	Seminar in Legal Medicine	Oct. 2 thr. 7, 1944, 6 days	25
MEDICINE, GENERAL			
Connecticut State Medical Society, 258 Church Street, New Haven, Connecticut	Connecticut Clinical Congress	Sept. 1944 Announced 3 days	2
American College of Physicians, 4200 Pine Street, Philadelphia 4, Pennsylvania At: Chicago Institutions	Special Phases of Internal Medicine	Oct. 23 thr. Nov. 4, 1944, 2 weeks	Members 40 Nonmembers 80
University of Minnesota, Minneapolis	Special Phases of Internal Medicine	Oct. 9 thr. 21, 1944, 2 weeks	Members 40 Nonmembers 80
Mayo Foundation, Rochester, Minnesota	General Medicine	Oct. 2 thr. 7, 1944, 1 week	Members 20 Nonmembers 40
University of Oregon, Portland, Oregon	Special Medicine	Nov. 13 thr. 24, 1944, 2 weeks	Members 40 Nonmembers 80
Philadelphia Institutions	General Medicine	Oct. 17 thr. 20, 1944, 4 days	5
Illinois State Medical Society and Chicago Medical Society (Interstate Postgraduate Medical Association of North America), 16 North Carroll Street, Madison, Wisconsin At: Palmer House, Chicago, Illinois	Postgraduate Refresher	Oct. 13 14, 1944, 2 days	1
Loyola University School of Medicine, 706 South Wolcott Avenue, Chicago, Illinois. At: Stevens Hotel, Chicago, Illinois	Papers for Physicians in General Practice	Sept. 27 28, 1944, 2 days	4
Mississippi Valley Medical Society, 203-224 W. C. U. Building, Quincy, Illinois. At: Pere Marquette Hotel, Peoria, Illinois	Postgraduate Medical Extension Course	Arranged 4 weeks, once a week (4 hours a day)	1
Kentucky State Medical Association, 620 South 3d Street, Louisville 2, Kentucky. At: Various places throughout Kentucky	General Course in Internal Medicine	Sept. 1 thr. 30, 1944, 1 month daily except Saturday	150
Harvard Medical School Courses for Graduates, 25 Shattuck Street, Boston 15, Massachusetts At: Boston City Hospital	Internal Medicine	Oct. 2 thr. 27, 1944, 3 weeks	50
Tufts Medical School Postgraduate Division, 30 Bennett Street, Boston 11, Massachusetts	Medicine	Announced 3, 6 or 12 days	15, 25, 50
University of Minnesota. At: University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Preventive Medicine	Announced 3, 6 or 12 days	15, 25, 50
Kansas City Southwest Clinical Society, 208 Shukert Building, Kansas City 6, Missouri At: Municipal Auditorium, Kansas City, Missouri	Symposia on Systems and Annual Fall Clinical Conference	Oct. 2, 3, 4, 1944, 3 days	5
University of Michigan Medical School, Ann Arbor, Michigan At: 9 areas throughout Michigan	Extramural Postgraduate Course	Fall 1944, 1 day weekly, 4 times	None
Aero Medical Association of the United States, 315 Walnut Street, Muncie, Indiana. At: Jefferson Hotel, St. Louis, Missouri	Aviation Medicine	Sept. 4, 5, 6, 1944, 3 days	5
Omaha Mid West Clinical Society, 1036 Medical Arts Building, Omaha 2, Nebraska. At: Hotel Paxton, Omaha, Nebraska	Refresher Course in General Medicine	Oct. 23 thr. 27, 1944, 5 days	5
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn At: Israel Zion Hospital, 4802 10th Avenue, Brooklyn, N. Y.	Pathology of Internal Medicine	Oct. 17, 1944 or arranged 16 Tuesdays or arranged	45
University of Buffalo Medical College, 24 High Street, Buffalo, New York. At: University of Buffalo, Buffalo General Hospital, Children's Hospital, Meyer Memorial Hospital	Postgraduate Course for Practitioners	Arranged, late in September, 1 week	30
Columbia University. At: Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Liver and Biliary Passage	Oct. 4 thr. Dec. 13, 1944, 11 weeks	40
New York Academy of Medicine, 2 East 103d Street, New York, New York	Chemical Data	Oct. 4 thr. Nov. 8, 1944, 6 weeks	20
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street, New York, New York	Infections and Their Treatment	Oct. 9 thr. 20, 1944, 2 weeks	..
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Physical Diagnosis and Hematology	Arranged. 30 hours	100
Duke University, Durham, North Carolina	Medicine	Arranged 1 month	100
Alumni Association, Medical College of State of South Carolina, 16 Lucas Street, Charleston 16, South Carolina	Course for General Practitioners	Arranged 3 months	150
University of Wisconsin, 418 North Randall Avenue, Madison 6, Wisconsin. At: Wisconsin General Hospital, Madison, Wis.	Course for General Practitioners	Arranged. 6 weeks	100
	General Medicine	Arranged 1 or 2 weeks	None
	Alumni Continuation Course (Gen. Med., Gen. Surg., and Obstet.)	Nov. 1 and 2, 1944, 2 days	5 to 10
	Observation Course in Medical and Clinical Subjects	Arranged 1 to 5 months	per mo. 100
NEUROLOGY AND PSYCHIATRY			
(See Also Electroencephalography)			
	Technic of Analytic Therapy	Oct. 4, 1944, approximately 3 months	\$150 seme. hr. \$10 per seme. hr. if less than 7 hr. taken
Catholic University of America, Washington, D. C. At: St. Elizabeth's Hospital, Anacostia, D. C.	Case Studies	Oct. 4, 1944, Thursdays, Approximately 3 months	\$150 seme. hr. \$10 per seme. hr. if less than 7 hr. taken
	Case Conferences	Oct. 4, 1944, Mondays, Approximately 3 months	\$150 seme. hr. \$10 per seme. hr. if less than 7 hr. taken
Institute of Medicine of Chicago, 86 East Randolph Street, Chicago 1, Illinois. At: Palmer House, Chicago	Nervous and Mental Diseases and War	Nov. 12, 1944, 2 days	3
Institute of Psychoanalysis, 43 East Ohio Street, Chicago 11, Illinois	Development of Personality	July 3 thr. Aug. 10, 1944, 6 weeks, Mondays and Thursdays	20
Kansas Medical Society, 112 West 6th Street, Topeka, Kansas At: 57 areas throughout Kansas	Psychosomatic Medicine	Announced	None
University of Minnesota. At: University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Psychiatry	Oct. 1944, 1½ days	5
	Neuropsychiatry	Announced 3, 6 or 12 days	15, 25, 50

Graduate Continuation Courses for Practicing Physicians—June 30, 1944–Dec. 31, 1944—Continued

Institution	Title of Course	Schedule of Course	Registration fee and/or Tuition
American Institute for Psychoanalysis, 240 Central Park South, New York, New York	Introductory Lectures on Psychoanalytic Technique Readings in Psychoanalysis	1st week in Oct 1944, 5 weekly lectures 1st week in Oct 1944, 15 weekly seminars	Arranged Arranged
	Transference Problems ^{1*}	1st week in Dec 1944, 5 weekly lecture seminars	Arranged
	Clinical Conferences ¹²	3d week in Sept 1944, 15 weekly seminars	Arranged
At New School for Social Research, 66 West 12th Street, New York, New York	Seminar on Rorschach Method of Personality Analysis ¹¹	1st week in Oct 1944, 15 weekly seminars	Arranged
	Psychology of Warlike and Civilian Casualties ¹¹	1st week in Oct 1944, 12 weekly lectures	Arranged
	Seminar on Personal Case Histories ¹¹	1st week in Oct 1944, 15 weekly seminars	Arranged
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Neurology and Psychiatry in Childhood	Oct 23 thr 29, 1944, 6 days full time	\$50
	Neurological and Psychiatric Diagnosis and Treatment in General Practice	Oct 30 thr Nov 4, 1944, 6 days, full time	40
Columbia University At Mt Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Nerve Blocking (Diagnosis and Therapy) ¹	Oct 3 thr Nov 3, 1944, 4 weeks	40
	Clinical Neurology (advanced)	Oct 2, 1944 thr Jan 3, 1945	40-50
	Neuroanatomy and Neuro-pathology	Oct 2, 1944, 76 hours	100
	Neuroanatomy	Oct 2, 1944, 46 hours	70
	Neuropathology	Oct 2, 1944, 30 hours	60
At Neurological and Psychiatric Institute, 766 West 168th Street, New York 22, New York	Trimester in Neurology and Psychiatry ¹	Arranged 2 months full or part time	\$10 for 2 months full time
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 100th Street, New York, New York	Applications of Rorschach Test in Psychiatric Diagnosis	Arranged 10 hours	20
	Psychosomatic Medicine	Arranged 15 hours	20
	Introduction to Analytic Psychiatry	Oct 1, 1944, 10 hours	20
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia, Pennsylvania	Clinicobiologic Neurology and Psychiatry ¹³	Arranged 10 weeks, 240 hours	100
At University of Pennsylvania Medical Laboratory, Graduate, University, Philadelphia and Pennsylvania Hospitals and Pennsylvania Institute Philadelphia	Clinical Psychiatry	Arranged 8 weeks, 240 hours	100
NEUROSURGERY			
University of Minnesota At University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Neurosurgery	Announced 3, 6 or 12 days	15, 20, 30
NUTRITION			
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Nutrition in Health and Disease	Sept 20 thr 26, 1944, 5 days, full time	40
OBSTETRICS AND GYNECOLOGY			
(See Also Anatomy)			
University of Illinois College of Medicine, 1800 West Polk Street, Chicago 12, Illinois	Combined Obstetric and Pediatric Refresher (some Gynecology may be substituted)	Aug 21 thr 26, 1944, 1 week	10
	Obstetrics and Gynecology	Throughout year, 1 week	10-15
Kansas Medical Society, 112 West 6th Street, Topeka, Kansas	Obstetrics ⁶	July 1944, 1½ days	5
At 57 areas throughout Kansas			
Louisiana State Board of Health New Orleans 7, Louisiana	Refresher Course in Obstetrics	Announced 2 weeks	None
At Louisiana State University			
Harvard Medical School Courses for Graduates, 20 Shattuck Street, Boston 15, Massachusetts	Gynecology ²	July, Aug., Sept 1944, arranged	per mo 70
At Free Hospital for Women, Boston	Clinical Obstetrics	Monthly, daily, 1 month or longer	120
At Free Hospital for Women, Boston, Boston Lying In Hospital	Pathology of Obstetrics and Gynecology	Oct., Nov., Dec 1944, 1 month daily	125
University of Minnesota At University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Obstetrics and Gynecology	Announced 3, 6 or 12 days	10, 20, 30
University Extension Division Columbia University	Observation Course in Obstetrics	First of any month, 1 month	100
At Margaret Hague Maternity Hospital, 85 Clifton Place, Jersey City 4, New Jersey			
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn	Prenatal Care	Oct 26, 1944, 8 Thursdays	10
At Long Island College Hospital 340 Henry Street, Brooklyn	Manikin	Oct 24, 1944, 10 Tue-days	10
	Symposium on Recent Advances in Gynecology	Sept 11 thr 16, 1944, 6 days, full time	50
	Seminar in Gynecology	Oct 2 thr Nov 20, 1944, 1 or 2 months, full time	1 mo 120 2 mo 200
Columbia University New York Postgraduate Medical School, 303 East 20th Street, New York 3 New York	Gynecological Endocrinology	Oct 4 thr Nov 20, 1944, 2 months, part time	100
	Diagnosis and Office Treatment	Oct 2 thr Dec 23, 1944, arranged, part time	100
	Recent Advances in Gynecology	Nov 13 thr 18, 1944, 6 days	50
Columbia University At Mt Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Obstetrics and Gynecology	Oct 1, 1944, 2 months, full time	200
New York Polyclinic Medical School and Hospital, 340 West 50th Street, New York 19, New York			
Southern Pediatric Seminar, Saluda North Carolina	Southern Pediatric Seminar	July 17 thr 29 1944	50
Pennsylvania Hospital At Philadelphia Lying In Hospital, 6th and Spruce Streets, Philadelphia 7, Pennsylvania	Graduate Medical Course in Caudal Anesthesia	Weekly, 1 week	50
Woman's Medical College of Pennsylvania, Philadelphia 29, Pennsylvania	Practical Gynecology	Arranged	Arranged
McBarray Medical College, Nashville 8, Tennessee	Practical Obstetrics	Sept 18 thr 22, 1944, 6 days	Arranged
	Obstetrics and Pediatrics ¹¹		6
OPHTHALMOLOGY			
University of Illinois At Illinois Eye and Ear Infirmary, 904 West Adams Street Chicago 6, Illinois	Gonioscopy ¹²	Oct 12-14, 1944 (tentative), 2 days	20
Children's Memorial Hospital, 707 Fullerton Avenue, Chicago 14 Illinois	Neuromuscular Anomalies of the Eye ¹	Nov 5 thr 10, 1944, 6 days	20
University of Minnesota At University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Ophthalmology	Announced 2, 6 or 12 days	15, 20, 30
American Academy of Ophthalmology and Otolaryngology, Mayo Clinic, Rochester, Minnesota	Home Study Course in Ophthalmology	Continuously for 6 months start Aug Sept 1, 1944	20

Graduate Continuation Courses for Practicing Physicians—June 30, 1944–Dec. 31, 1944—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Surgery of the Eye ¹	Sept. 27-28, 1944, 2 days full time	\$4
	Motor Anomalies of the Eye ¹	Sept. 18 thr. 23, 1944, 6 days full time	60
	Anomalies of Ocular Muscles ¹	Sept. 25 thr. 30, 1944, 6 days full time	50
	Slit Lamp Diagnosis ¹	Oct. 2 thr. 6, 1944, 5 days part time	45
	Ophthalmic Neurology ¹	Oct. 2 thr. 6, 1944, 5 days, part time	45
	Embryology, Histology and Pathology of the Eye ¹	Oct. to Nov. 1944, 15 sessions, part time	75
Columbia University, At Mt Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Ophthalmic Surgery ¹	Sept. 27 thr. Dec. 13, 1944, 12 weeks	50
	Slit Lamp Microscopy ¹	Oct. 4 thr. Nov. 22, 1944, 8 weeks	20
	Refraction ¹	Oct. 5 thr. Dec. 21, 1944, 11 weeks	45
	Extra Ocular Muscles ¹	Oct. 7 thr. Nov. 25, 1944, 8 weeks	20
	Histopathology of the Eye ¹	Sept. 29 thr. Dec. 15, 1944, 12 weeks	50
	External Diseases of the Eye ¹	Oct. 5, 1944 thr. Jan. 25, 1945, 16 weeks	35
	Embryology of the Eye ¹	Oct. 3 thr. Nov. 21, 1944, 8 weeks	35
	Physiological Optics ¹	Oct. 4 thr. Nov. 8, 1944, 6 weeks	25
	Ophthalmological Neurology	Oct. 6 thr. Nov. 24, 1944, 8 weeks	25
	Ophthalmoscopy (Elementary)	Sept. 25 thr. Dec. 11, 1944, 12 weeks	20
	Plastic Surgery ¹	Arranged. 13 hours	75
	Operative Eye Surgery (cadaver) ¹	Arranged. 1 month	75
	Glaucoma Clinic ¹	Arranged. 10 hours	40
	Neuro Ophthalmology ¹	Arranged. 1 month	50
	Perimetry ¹	Arranged. 1 month	40
	Reading Disabilities ¹	Arranged. 2 weeks	30
	Orthoptics ¹	Arranged. 1 month	40
	Motor Anomalies and Orthop- tics ¹	Arranged. 1 month	40
	Refraction ¹	Arranged. 3 months	100
At: New York Eye and Ear Infirmary, 218 2d Avenue, New York 3, New York	Slit Lamp Microscopy ¹	Arranged. 1 month	50
	Ophthalmoscopy ¹	Arranged. 1 month	40
	External Eye Diseases— Ocular Therapy ¹	Arranged. 1 month	40
	Bacteriology, Serology and Immunology ¹	Arranged. 1 month	40
	Histopathology ¹	Arranged. 3 months	85
	Embryology ¹	Arranged. 1 month	40
	Anatomy and Physiology ¹	Arranged. 1 month	40
	Contact Lenses, Telescopic Spectacles, Optics ¹	Arranged. 1 month, 2 months	1 mo. 40 2 mo. 75
	Refraction	Arranged. 6 weeks, part time	100 ^{3, 4}
	Ophthalmology (also cadaver)	Oct. 1, 1944, 3 months, part time	275 ^{3, 4}
	Refraction	Oct. 1, 1944, 6 weeks, part time	100 ^{3, 4}
	Ophthalmology	Oct. 1, 1944, 6 weeks, part time	50 ³
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Ophthalmic Histology and Pathology	Arranged. 8 weeks, 96 hours	200
University of Pennsylvania Graduate School of Medicine At: Wills Eye Hospital, 1691 Spring Garden, Philadelphia, Pennsylvania	Ophthalmological and Oto- rhinological Continuation Course	Nov. 12, 1944, 2 days	None
Alumni Association of Medical College of State of South Carolina, Charleston, South Carolina	Ophthalmology (given in con- junction with 2 day course in Otolaryngology)	Approximately 2d week in Dec. 1944, 2 days	10
Virginia Society of Otolaryngology and Ophthalmology, Box 1635, University Station, Charlottesville, Virginia At: University of Virginia Medical School and Hospital, Charlottesville, Virginia			
ORTHOPEDIC SURGERY (See Also Anatomy, Fractures)			
University of Minnesota, At University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York Columbia University, At Mt Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Orthopedics	Announced. 3, 6 or 12 days	15, 23, 50
	Orthopedics in General Practice	Oct. 23 thr. 28, 1944, 6 days, full time	50
	Injuries to Bones and Joints	Oct. 2 thr. Nov. 23, 1944, 8 weeks	25
OTOLOGY			
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York Columbia University, At Mt Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York Columbia University, At: New York Eye and Ear Infirmary, 218 2d Avenue, New York 3, New York University of Pennsylvania Graduate School of Medicine At: University of Pennsylvania Anatomical Laboratory, Phil- adelphia, Pennsylvania	Orthotic Anatomy as Applied to Otology ¹	Arranged. Part time	per hr. 10
	Histopathology of the Ear ¹	Oct. 3 thr. Nov. 9, 1944, 6 weeks	50
	Anatomy of Temporal Bone ¹	Arranged. 1 month	45
	Clinical Otology ¹	Arranged. 1 month	40
Columbia University, At: University of Pennsylvania Anatomical Laboratory, Phil- adelphia, Pennsylvania	Otologic (Cadaver) Operations	Arranged. 2 weeks, 20 hours	100
OTORHINOLARYNGOLOGY (See Also Anatomy, Endoscopy)			
University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois American Academy of Ophthalmology and Otolaryngology, Mayo Clinic, Rochester, Minnesota University of Minnesota, At: University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Refresher Course of Otolaryn- gology for Specialists ¹	Sept. 25, 1944, 1 week	50
	Home Study Course in Oto- laryngology	Sept. 1, 1944, continuously for 9 months	10
	Otolaryngology	Announced. 3, 6 or 12 days	15, 23, 50
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Surgical Anatomy as Applied to Rhino- and Laryngology ¹	Arranged. Part time	per hr. 10
	Diagnostic Procedures	Oct. to Dec. 1944, arranged, part time	40 60
Columbia University, At: New York Eye and Ear Infirmary, 218 2d Avenue, New York 3, New York	Embryology, Histology and Pathology of Ear, Nose and Throat ¹	Oct. to Nov. 1944, 15 sessions, part time	75
	X-Ray ¹	Arranged. 6 hours	25
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Operative Ear Surgery, Nasal Sinuses (Cadaver) ¹	Arranged. 1 month	110
	Otolaryngology (Eye, Ear, Nose and Throat)	Oct. 1, 1944, 6 weeks, full time	100 ³
	Otolaryngology (Ear, Nose and Throat)	Oct. 1, 1944, 6 weeks, part time	75 ³
	Otolaryngology (also Cadaver)	Oct. 1, 1944, 3 months, full time	600 ³
Virginia Society of Otolaryngology and Ophthalmology, Box 1635, University Station, Charlottesville, Virginia At: University of Virginia Medical School and Hospital, Charlottesville, Virginia	Otolaryngology (given in con- junction with 2 day course in Ophthalmology)	Approximately 2d week in Dec. 1944, 2 days	10

Graduate Continuation Courses for Practicing Physicians—June 30, 1944–Dec. 31, 1944—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PATHOLOGY			
Catholic University of America, Washington, D. C. At: St. Elizabeth's Hospital, Anacostia, D. C.	Brain Pathology	Oct. 4, 1944, approximately 3 months	\$150 seems 11 less than 7 hr., \$10 per some, hr. Arranged
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Practical Laboratory Instruction in Pathology and Bacteriology	Arranged	
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Gross and Microscopic Pathology	Sept. 15 thr. Oct. 30, 1944, approximately 6 weeks	50
	Surgical Pathology	Sept. 26, 1944 thr. Jan. 4, 1945, approximately 14 weeks	150
	Pathology of Blood and Blood Forming Organs	Nov. 1, thr. 30, 1944, 1 month, part time	75
	Pathological Physiology: Functional and Chemical Aspects	Oct. 9 thr. 13, 1944, 5 days, full time	45
PEDIATRICS			
(See Also Allergy, Cardiovascular Diseases, Endocrinology, Neurology and Psychiatry Obstetrics and Gynecology)			
Children's Memorial Hospital, 707 Fullerton Avenue, Chicago 14, Illinois	Postgraduate Course in Pediatrics	Oct. 2 thr. 28, 1944, 4 weeks	100
Kansas Medical Society, 112 West 6th Street, Topeka, Kansas At: 5-7 areas throughout Kansas	Pediatrics ^a	July 1944, 1½ days	5
Harvard Medical School Courses for Graduates, 25 Shattuck Street, Boston 15, Massachusetts At: Massachusetts General Hospital and Infants' and Children's Hospital, Boston, Massachusetts	Pediatrics (A)	July 31 thr. Aug. 12, 1944, 2 weeks, daily	\$75 (\$50 extra for added 2 wk.)
University of Minnesota. At: University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Pediatrics	Announced. 3, 6 or 12 days	15, 25, 50
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Symposium on Recent Advances in Pediatrics	Oct. 16 thr. 21, 1944, 6 days, full time	50
Columbia University. At Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Clinical Pediatrics	Oct. 3 thr. Nov. 23, 1944, 8 weeks	50
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Pediatrics	Arranged. 4 weeks, part time	50 ^a
Southern Pediatric Seminar, Saluda, North Carolina	Southern Pediatric Seminar	July 17 thr. 29, 1944, 12 days	25
William Buchanan Foundation. At: Children's Hospital and University of Texas Medical Branch, Galveston, Texas	Pediatric Conference	Announced. 2 days	None
PHYSICAL THERAPY			
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Practical Instruction in Physical Therapy as Applied to Diseases of the Skin	Arranged. Part time, 6 weeks, 3 months	6 wk. 50 3 mo. 55
Columbia University. At: Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Physical Therapy	Oct. 3 thr. Nov. 23, 1944, 8 weeks	25
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	General Course in Physical Therapy	Arranged. 4 weeks, part time	100 ^a
American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago 2, Illinois. At Statler Hotel, Cleveland, Ohio	Physical Therapy Lectures	Sept. 6, 7, 8, 1944, 3 days	\$2 single lec. \$15.9 lect.
POLIOMYELITIS			
Postgraduate School of Physical Therapy Warm Springs Found. At: Georgia Warm Springs Foundation, Warm Springs, Ga.	Treatment of Acute and Convalescent Poliomyelitis	First Monday of each month, 5 consecutive days	None
University of Minnesota. At: University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Kenny Technique for Management of Infantile Paralysis	Every other month, 6 days	25
PROCTOLOGY			
Tufts Medical School Postgraduate Division, 30 Bennett Street, Boston 11, Massachusetts	Proctology I Proctology II	Oct. 23 thr. 28, 1944, 6 days Nov. 6 thr. Dec. 1, 1944, 2 or 4 weeks	25 50 to 100
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn At: Jewish Hospital, 555 Prospect Street, Brooklyn, New York	Proctology	Oct. 16, 1944, twice weekly for 4 weeks	25
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Surgical Anatomy as Applied to Colon and Rectum	Arranged. Oct to Dec. 1944, 12 hours, part time	100.
Columbia University. At Mt. Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York	Proctology for Surgeons (Advanced)	Oct. 4 thr. Nov. 24, 1944, 8 weeks	65
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Medical Proctology Proctology Proctology (Cadaver)	Oct. 3 thr. Nov. 21, 1944, 8 weeks Oct. 1, 1944, 6 weeks, part time Oct. 1, 1944, 6 weeks, part time	25 75 ^a 200 ^a
PUBLIC HEALTH			
University of Michigan School of Public Health, Ann Arbor, Michigan	Public Health Economics Postwar Preparation for County and City Health Officers	Announced. 3 days to 2 weeks Announced. 3 days	..
University of Minnesota. At: University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Public Health	Announced. 3, 6 or 12 days	15, 25, 50
University of North Carolina School of Public Health, Chapel Hill, North Carolina	Public Health and Related Fields	Arranged. 1 quarter	100
RADIOLOGY			
(See Also Dermatology and Syphilology)			
American Roentgen Ray Society and Radiological Society of North America, 7144 Jeffery Avenue, Chicago, Illinois At: Palmer House, Chicago, Illinois	Refresher Course Program	Sept. 24 thr. 29, 1944, 6 days	\$2 to \$11 ¹⁰
Harvard Medical School Courses for Graduates, 25 Shattuck Street, Boston 15, Massachusetts At: Boston City Hospital	General Roentgenology	Monthly except July, 1 month, mornings	50
University of Minnesota. At: University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	General Roentgenology	Monthly. 1 month, daily	100
	Radiology	Announced. 3, 6 or 12 days	15, 25, 50
Columbia University. At: Mt. Sinai Hospital, East Gun Hill Road, Bronx, New York	Roentgenology of the Thorax	Oct. 19 thr. Dec. 7, 1944, 2 mo., 1 day per week	25
Long Island College of Medicine, Medical Society of County of Kings and Academy of Medicine, Brooklyn At: Jewish Hospital, 555 Prospect, Brooklyn, New York	X-Ray Diagnosis	Oct. 3, 1944, 10 Thursdays	50
New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street, New York, New York	Radiology	Arranged. 2 months	120
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York 19, New York	Diagnostic Roentgenology and Radiotherapy (Advanced)	First of any month, 6 weeks 3 months, full time	175 ^a 200 ^a

Graduate Continuation Courses for Practicing Physicians—June 30, 1944–Dec. 31, 1944—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
SURGERY			
(See Also Anatomy, Obstetrics and Gynecology, Otorhinolaryngology, Proctology)			
Illinois State Medical Society and Chicago Medical Society (Interstate Postgraduate Medical Association of North America, 16 North Carroll Street, Madison, Wisconsin) At Palmer House, Chicago, Illinois	General Surgery	Oct 17 thr 20, 1944, 4 days	\$5
University of Minnesota At University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Surgery	Announced 3, 6 or 12 days	15, 25, 50
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Seminar in Traumatic Surgery ¹	Oct 9 thr 20, 1944, 11 days, full time	90
	Diagnosis and Treatment of Trauma	Oct 0 thr Nov 4, 1944, 6 days, full time	50
	Diagnosis and Management of Diseases of Liver and Gall bladder ¹	Oct 4 thr Nov 15, 1944, 7 sessions, part time	75
	Surgical Anatomy as Applied to Thoracic Surgery ¹	Oct to Dec 1944, arranged, 24 hours, part time	200
	Surgery of Thyroid Gland and Gastrointestinal Tract ¹	Oct 2 thr Nov 27, 1944, 9 sessions, part time	125
Columbia University At Roosevelt, Mount Sinai, Presbyterian and New York Postgraduate Hospitals, New York, New York New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 100th Street, New York, New York	Dissection and Surgical Anatomy ¹	Oct to Dec 1944, arranged, 24 hours, part time	150
	Symposium on General Surgery ¹	Oct 23 thr 27, 1944, 5 days	75
New York Polyclinic Medical School and Hospital, 345 West 20th Street, New York 19, New York	Surgical Technique	Arranged 52 hours	375
	Surgical Operative Clinic and Lecture Course	Oct 1, 1944, 6 weeks, full time	100 ²
Oklahoma State Medical Association, 210 Plaza Court Building, Oklahoma City 3, Oklahoma At Various areas throughout Oklahoma	Combined Surgical Course	Oct 1, 1944, 3 months, full time	300 ³ 4
	Surgical Diagnosis	July 24 thr Sept 20, 1944	9
		Oct 2 thr Dec 15, 1944	Negroes 3
Tennessee State Medical Association Committee on Postgraduate Instruction in Surgical Diagnosis, 4 University Center Bldg., Memphis, Tennessee At Various areas throughout Tennessee		Dec 18, 1944 thr Feb 20, 1945	Interns free
		10 weeks, 1 night per week	
Tennessee State Medical Association Committee on Postgraduate Instruction in Surgical Diagnosis, 4 University Center Bldg., Memphis, Tennessee At Various areas throughout Tennessee	Postgraduate Instruction in Surgical Diagnosis	July 17 thr Sept 22, 1944	10
		Sept 25 thr Dec 1, 1944, 10 weeks	Negroes 150 Interns 250
THERAPY			
Columbia University At Mt Sinai Hospital, 6th Avenue and 100th Street, New York 29, New York	Recent Advances in Therapy	Oct 4 thr Nov 22, 1944, 8 weeks	25
	Diagnosis and Therapy	Oct 2 thr Dec 4, 1944 9 weeks	50
	General Bedside Therapy	Oct 2 thr Nov 24, 1944, 8 weeks	25
TROPICAL MEDICINE			
Tulane University of Louisiana School of Medicine, 1430 Tulane Avenue, New Orleans, Louisiana	Tropical Medicine	Oct 2, 1944, 5 months	..
University of Michigan School of Public Health, Ann Arbor, Michigan	Tropical Diseases	Announced 3 days	.
Columbia University At Mt Sinai Hospital 6th Avenue and 100th Street, New York 29, New York	Tropical Medicine	Oct 2 thr Nov. 24, 1944, 8 weeks	25
University of Texas Medical Branch, Galveston, Texas	Symposium on Tropical Diseases	Announced 2 days	None
UROLOGY			
(See Also Anatomy and Endoscopy)			
University of Minnesota Center for Continuation Study, Minneapolis 14, Minnesota	Urology	Announced 3, 6 or 12 days	15, 25, 50
Long Island College of Medicine, Medical Society of County of Kings, and Academy of Medicine, Brooklyn At Long Island College Hospital, 340 Henry Street, Brooklyn, New York	Urology	First of each month, 1 month or longer	per mo 25
Columbia University, New York Postgraduate Medical School, 303 East 20th Street, New York 3, New York	Urological Diagnosis in General Practice	Oct 2 thr 12, part time	50
	Recent Advances in Urology ¹	Nov 13 thr 18, 1944, 6 days, full time	60
Woman's Medical College of Pennsylvania, Philadelphia 29, Pennsylvania	Female Urology	Arranged 16 weeks, 3 hours per week	100
VENEREAL DISEASE			
(See Also Dermatology & Syphilology)			
United States Public Health Service, Hot Springs National Park, Arkansas	Management and Control of Venereal Diseases	Announced 3 weeks	..
New York City Department of Health At Bureau of Social Hygiene, 125 Worth Street, New York, New York	Postgraduate Course in Venereal Disease ¹	Continuously, 10 weeks	None
Institute for Control of Syphilis, University of Pennsylvania Philadelphia 4, Pennsylvania	10 days' Intensive Training Course in Venereal Disease Control	Arranged 10 days	25
	3 wk Venereal Disease Review Course ¹⁸	Arranged 3 weeks	35
	6 mo Essential Basic Training Course ¹⁸	Arranged 6 months	125
	4 wk Intensive Review Course ¹⁸	Arranged 4 weeks	50

1 For specialists only
 2 Women not admitted
 3 Free or special fee to physicians in service
 4 Grants may be made from scholarship fund
 5 A few scholarships covering tuition for tuberculous physicians
 6 For members of Kansas Medical Society and physicians in service
 7 Dentists also are admitted
 8 For certificate of attendance if physician has attended 3 of 4 meetings
 9 Full time faculty members of Creighton and Nebraska University free
 10 Varying with time of attendance

11 Laymen also admitted
 12 For psychiatrists in training for practice of psychoanalysis
 13 For staff members of mental institutions
 14 For Negro physicians
 15 For physicians who have had at least 2 years' special training in ophthalmology or 5 years' experience in same
 16 Free to members of two societies, fellows, residents and interns in radiology
 17 Licensed physicians in New York City
 18 For public health officers etc
 19 Illinois physicians free
 20 For physicians who have had experience in electrocardiography.

Medical Examinations and Licensure**COMING EXAMINATIONS AND MEETINGS****EXAMINING BOARDS IN SPECIALTIES**

Examinations of the Examining Boards in Specialties were published in THE JOURNAL, July 1, page 674.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, Oct. 24-26. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, September 5. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

COLORADO * Denver, July 10-12. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

CONNECTICUT: * Written New Haven, July 11-12. Endorsement. New Haven, July 25. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. Homoeopathic Derby, July 11-12. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, Oct. 10-12. Sec., Medical Council of Delaware, Dr. J. S. McDaniell, 229 S. State St., Dover.

DISTRICT OF COLUMBIA * Washington, November. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

HAWAII: Honolulu, July 10-13. Sec., Dr. J. A. Morgan, 55 Young Bldg., Honolulu.

IDAHOO: Boise, July 11. Dir., Bureau of Occupational Licenses, Mrs. Lela D. Painter, 355 State Capitol Bldg., Boise.

INDIANA: Indianapolis, Jan. 3-5. Exec. Sec., Board of Medical Registration and Examination, Miss Ruth V. Kirk, 301 State House, Indianapolis 4.

IOWA: * Iowa City, Sept. 25-27. Dir. Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Nov. 2-3. Sec., Board of Medical Registration and Examination, Dr. J. I. Hassig, 505 N. Seventh St., Kansas City.

KENTUCKY: Louisville, Sept. 11-12. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville.

LOUISIANA: September. Sec., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MASSACHUSETTS: Boston, July 11-14. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413 F. State House, Boston.

MICHIGAN: * Ann Arbor, July 24-26. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. All-gan St., Lansing 8.

MINNESOTA: * Minneapolis, Aug. 29-31. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSOURI: St. Louis, Sept. 7-9. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 2-4. Sec., Dr. O. G. Klein, First Nat'l Bank Bldg., Helena.

NEBRASKA: * Omaha, Sept. 26-28. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln.

NEVADA: Carson City, Aug. 7. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Board of Registration in Medicine, Dr. D. G. Smith, 77 Main St., Nashua.

NEW MEXICO: * Santa Fe, Oct. 9-10. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NORTH CAROLINA: Raleigh, Sept. 11-12. Sec., Dr. W. D. James, Hamlet.

OHIO: Examination Columbus, Sept. 26-29. Endorsement Columbus, Oct. 3. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, Sept. 16. Sec., Dr. J. D. Osborn, Jr., 1 Frederick.

OREGON: * Portland, July 26-27. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: Harrisburg, July 11-15. Act. Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 358 Education Bldg., Harrisburg.

SOUTH DAKOTA: Pierre, July 18-19. Dir., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Pierre.

VERMONT: Burlington, Sept. 12-14. Sec., Dr. F. J. Lawless, Richford.

VIRGINIA: Richmond, Sept. 19-22. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WASHINGTON: * Seattle, July 10-12. Dir., Department of Licenses, Mr. Thomas A. Swaze, Olympia.

* Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

DISTRICT OF COLUMBIA: Washington, October. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

FLORIDA: Gainesville, Nov. 4. Final date for filing application is Oct. 20. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

IOWA: Des Moines, July 11. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

RHODE ISLAND: Providence, Aug. 16. Chief, Division of Examiners, Mr. Thomas B. Caven, 366 State Office Bldg., Providence.

Bureau of Legal Medicine and Legislation**MEDICOLEGAL ABSTRACTS**

Malpractice: Appendicitis Mistaken for Ptomaine Poisoning.—Donald Lawless, a 12 year old boy, on March 1, 1939 suffered abdominal pains with attendant vomiting and diarrhea. The following day he was taken to the physician defendant, who took the case history (which indicated that the boy had eaten moldy bologna the previous day), examined the boy's abdomen by palpation and percussion, took his temperature and examined his chest and lungs. The physician informed an aunt who accompanied the boy to his office that the boy probably had an attack of ptomaine poisoning but also stated "it sounds like we might have an attack of appendicitis." He recommended a diet, prescribed medicine for ptomaine poisoning and ordered the boy put to bed with an ice bag on the abdomen. On March 3 the physician was told that the patient seemed better. The next day, however, his condition seemed worse and he was removed to a hospital, where blood and urine analyses were taken. The hospital record dated on admittance contained the following entry labeled working diagnosis: "After physical examination, ptomaine, due to canned bologna—Possible appendicitis involved." The physician visited his patient daily or more often. On March 7 the physician's office associate, after consultation, made a diagnosis of appendicitis. The boy's condition grew much worse March 9 and the physician advised surgery. Dr. Morgan, a surgeon, was consulted and diagnosed the condition as "peritonitis, possibly due to appendicitis, retrocecal." The ensuing operation, at which the defendant assisted, disclosed a ruptured appendix and the boy died a few hours after the operation. The plaintiff, the mother of the boy, subsequently brought suit for malpractice against the physician defendant. At the conclusion of the plaintiff's evidence the trial court entered a judgment of nonsuit and the plaintiff eventually appealed to the Supreme Court of California.

The plaintiff contended first that the judgment of nonsuit was erroneous since sufficient evidence had been introduced at the trial to warrant a finding by the jury that the physician defendant had been negligent in his diagnosis and treatment of his patient. In passing on this contention the Supreme Court deemed it advisable to state the rules of law measuring a physician's liability for malpractice. The law demands, said the Supreme Court, only that a physician have the degree of learning and skill ordinarily possessed by practitioners of the medical profession in the same locality and that he exercise ordinary care in applying such learning and skill in diagnosing his patient's ailments and in prescribing for and treating his patient. Ordinarily, a physician's failure to possess or exercise the requisite learning or skill can be established only by the testimony of experts. Where, however, negligence on the part of a physician is demonstrated by facts which can be evaluated by resort to common knowledge, expert testimony is not required since scientific enlightenment is not essential for the determination of an obvious fact. The plaintiff argued that the jury could have found that the physician was negligent on the theory that after the physician correctly diagnosed the ailment as appendicitis he failed to treat his patient therefore, but instead treated him for ptomaine poisoning. The evidence, answered the court, does not substantiate this premise. It clearly appears that although the physician at all times considered the possibility of appendicitis, he concluded, as a result of his examination, the presence of certain symptoms including diarrhea, and the history of the boy's having eaten

bologna, that his patient was suffering from ptomaine poisoning, and prescribed accordingly.

The plaintiff next argued that the jury could have found that the defendant was negligent in failing to diagnose positively the case as appendicitis at an earlier date than he did and that such a finding could have been based on expert testimony as well as the common knowledge of the jurors. No expert testimony, answered the court, was introduced to show that in light of the case history of the patient, the symptoms manifested, and the facts disclosed by the examination, the defendant was negligent in failing to diagnose the ailment as appendicitis at an earlier date. The only witnesses who appeared and could have qualified as experts were Dr. Morgan, the operating physician and the defendant himself. Dr. Morgan's testimony did not indicate or intimate that the defendant's diagnosis was not consistent with what other physicians in the community would have arrived at under similar circumstances in the exercise of reasonable care. He testified principally as to his own conduct or course of action at a time when the defendant had diagnosed the case as appendicitis. Furthermore, the fact that another physician might have elected to treat the case differently or use methods other than those employed by the defendant does not of itself establish negligence.

As indicating that there was sufficient evidence introduced to warrant a finding of negligence on the part of the defendant, the plaintiff argued that Dr. Morgan's testimony showed that the standard practice in the community required a blood count to be taken when appendicitis was suggested and that the defendant failed to take a blood count. The argument, said the court, however, does not find support in the record. In response to the question "In any case, Doctor, suggesting the presence of appendicitis, in the exercise of that standard of degree of care in this community, is a blood count indicated?" Dr. Morgan answered:

I cannot answer that yes or no; but I can answer it. Let me explain a few things. When we think of blood count as something which will indicate to us whether there is a pus condition somewhere or reaction to the system of an infection, it does not of itself indicate appendicitis. We take those counts just to verify our idea that there is an infection process in the system, but we do not depend upon it to say that we have appendicitis. I have tried to explain when we take counts and I will . . . also state a great majority of us do when some of us do not.

Dr. Morgan did not say that a blood count should be taken for the purpose of diagnosis in all cases of possible appendicitis. Moreover, as previously noted, the patient's blood count was taken on March 4, when he entered the hospital, and certainly there is no suggestion in Dr. Morgan's testimony that the exercise of ordinary care in this case required the taking of a blood count before March 4, in view of the facts disclosed by the examination.

We believe, continued the court, that expert testimony was necessary to enable the jury to determine the issues in this case. Medical learning was necessary to guide the mind of the unskilled jury in determining whether failure positively to diagnose the illness as appendicitis at an earlier date resulted from negligence on the part of the physician. The proper methods to be employed in the diagnosis of an internal abdominal ailment, as well as the merits of such a diagnosis, are peculiarly within the knowledge or province of experts. The plaintiff argued, however, that laymen are so familiar with the use of roentgenograms that the jurors would have been justified in drawing on their common knowledge as a basis for a finding that the defendant physician was negligent in failing to have roentgenograms taken. While it has been intimated, said the court, in some cases that the use of roentgenograms as an aid to careful diagnosis of traumatic injuries is a matter of common knowledge, we cannot say that the use of roentgenograms in the diagnosis of an internal abdominal ailment such as revealed by the facts in this case is so well established that the jury

could have determined, of its own knowledge, that failure to take roentgenograms constituted negligence. It was not only necessary for the plaintiff to prove a mistake in diagnosis, but also that the mistake was due to failure to exercise ordinary care in making the diagnosis, and mere proof that the treatment was unsuccessful is not sufficient to establish negligence. We are satisfied that there is no evidence in the record before us showing that the defendant physician was negligent in the diagnosis or treatment of his patient's ailment. It follows that the trial court could have properly granted a nonsuit.

At the trial the plaintiff called the physician defendant as a witness and propounded the following questions to him:

1. From what you saw there, Doctor, you would say that that condition [ruptured appendix] had persisted for at least three days?

2. Doctor, the normal leukocyte count in a boy 12 years of age is between eight and ten thousand?

3. Doctor, do you know what the normal leukocyte count in the blood stream of a boy about 12 years of age is?

The trial court sustained objections to these questions on the ground that they called for expert testimony and that an adverse party called as a witness under the applicable California statute cannot be examined as an expert. This action the Supreme Court regarded as error, making it necessary to reverse the judgment of nonsuit. The applicable California statute, said the court, enables a party to call his adversary as a witness and to elicit his testimony without making him his own witness. This statute is remedial in character and should be liberally construed in order to accomplish its purpose. Any relevant matter in issue in a case is within the scope of the examination of a witness called pursuant to the provisions of that statute. It is well settled that a plaintiff in a malpractice action can establish his case by the testimony of the defendant therein. It is equally well settled that expert testimony is ordinarily required to prove the material or relevant issues in an action for malpractice. Neither the letter nor the spirit of the statute suggests any reason why the defendant in such an action should not be examined with regard to the standard of skill and care ordinarily exercised by physicians in the community under like circumstances and with respect to whether his conduct conformed thereto, even though such examination calls for expert testimony.¹

The plaintiff failed, although it was incumbent on her, to establish by expert testimony the standard of skill and care ordinarily exercised by practitioners in the community under like circumstances and that the defendant physician's conduct in this instance was not consistent therewith. While it may be true that favorable answers to the questions propounded to the defendant when he was called as a witness by the plaintiff would not have supplied the deficiency in expert testimony in this case, the plaintiff was precluded, by virtue of the trial court's ruling, from continuing with the examination of the witness and developing further the line of inquiry which might have elicited the essential expert testimony necessary to prove her case. For this reason the judgment of nonsuit was reversed.—*Lavelle v. Calaway*, 147 P. (2d) 604 (Calif., 1944).

1. To the contrary see *Hull v. Plume*, 37 A. (2d) 53, J. A. M. A. 125: 674 (July 1) 1944; *Forthofer v. Arnold*, 60 Ohio App. 436, 21 N. E. (2d) 869; *Wiley v. Wharton*, 68 Ohio App. 345, 41 N. E. (2d) 255; *Osborn v. Coicy*, 24 Idaho 158, 132 P. 967.

Society Proceedings

COMING MEETINGS

National Medical Association, St. Louis, Aug. 14-17. Dr. John T. Given*, 1108 Church St., Norfolk, Va., Secretary.

Utah State Medical Association, Salt Lake City, August 24-26. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

47:445-592 (April) 1944. Partial Index

- Effect of Interval Between Births on Maternal and Fetal Outlook. N. J. Eastman.—p. 445.
Biologic Characteristics of Normal Vagina. A. E. Rakoff, L. G. Feo and L. Goldstein.—p. 467.
*Acute Anterior Poliomyelitis During Pregnancy. H. M. Weaver and G. Steiner, with technical assistance of Helen Ammon and Norma Hastings.—p. 495.
Carcinoma of Cervix: End Results. C. A. Behney and J. Y. Howson.—p. 506.
Salmonella Infection in Gynecology. H. C. Falk and G. Blinick.—p. 514.
Uterine Motility Associated with Posterior Positions of Occiput: Observations Made with Lóránd Tocograph. D. P. Murphy.—p. 521.
Voorhees Bag. H. A. Power and H. W. Erving.—p. 527.
Management of Climacteric with Ethinyl Estradiol. R. A. Lyon.—p. 532.
Routine Order of Examinations for Diagnosis of Sterility. W. W. Williams.—p. 537.
Breech Presentation in Elderly Primipara. J. W. Walsh and Katherine Kuder.—p. 541.
Granuloma Pyogenicum of Cervix. R. P. Morehead, W. E. Woodruff and W. C. Thomas.—p. 546.
Eclampsia, Cerebral Abscess and Hemorrhage. S. L. Israel and B. J. Alpers.—p. 551.
Erythroblastosis Fetalis in Identical Twins. N. G. Demy.—p. 554.

Poliomyelitis During Pregnancy.—Weaver and Steiner discuss the question of pregnancy as a factor in susceptibility of the mother to the disease; the question of transmissibility from mother to fetus, and the question of transmissibility of the disease to the offspring through the secretions of the mammary glands. Relatively few cases of poliomyelitis acquired during pregnancy have been reported, but this may be due to incomplete reporting rather than to rarity of occurrence. Of the reported cases the smallest number (17.1 per cent) occurred during the first trimester of pregnancy. Studies by the authors on pregnant cotton rats furnished some evidence that chorionic gonadotropin or some substance associated with the formation or metabolism of this hormone might play a role in increasing the resistance of the pregnant female during the first trimester of pregnancy to the virus of poliomyelitis. There was no evidence that infective quantities of the Armstrong-Lansing strain of the virus of poliomyelitis were transmitted from the mother to the nervous tissues of the fetus in utero or from the mother to the nervous tissues of her offspring through the secretions of the mammary glands.

Carcinoma of Cervix.—Behney and Howson review observations on 580 patients with carcinoma of the cervix uteri and compare them with results obtained in an earlier group of 437 patients. They surveyed altogether 1,007 women with cervical cancer who died in the radiologic service of the Philadelphia General Hospital since 1922. Women with stage 4 lesions treated with external irradiation of high voltage x-ray therapy alone lived longer than those treated with lightly filtered radium alone. The best results were secured in the group in which, after regression of the primary lesion had been brought about by preliminary high voltage x-ray therapy, the patients were subsequently treated with heavily filtered radon at a distance of 1 cm. Since this fact became apparent, it has become the policy to administer external high voltage x-ray therapy preliminary to the radon application in every case of carcinoma of the cervix. The longer duration of life of patients in the recent series who were treated with high voltage x-ray therapy regardless of the stage of the disease is attributed to the fact that these patients were given more adequate dosage than those of the earlier series. External high voltage roentgen therapy is always beneficial and safe for even the most advanced stages of the

disease. In many apparently advanced lesions preliminary x-ray therapy will result in sufficient regression of the lesion, so that radon may be applied subsequently. Heavily filtered radon applied at a distance of 1 centimeter results in better palliation than the highly filtered radon in contact application.

American Journal of Ophthalmology, Cincinnati

27:341-466 (April) 1944

- New Type of Pigment Line in Cornea. F. W. Stocker and R. E. Prindle.—p. 341.
Ophthalmologic Review of More Than 20,000 Men at Altoona Induction Center. L. P. Glover and W. R. Brewer.—p. 346.
Form and Character of Rod Scotometry. P. C. Livingston.—p. 349.
Ocular Rosacea and Ariboflavinos. Winifrede M. Fish.—p. 354.
Psychogenic Color Field.—p. 358.
Tumor of Lacrimal Gland. J. J. Flick.—p. 362.
Report on Defects Found in Tonometers Examined at Checking Station of National Society for Prevention of Blindness. M. J. Schoenberg and A. Posner.—p. 368.
Optic Nerve Atrophy in Malignant Nasopharyngeal Tumors. Martha Rubin Folk.—p. 373.
Hyperpyrexia in Treatment of Acute Ocular Inflammations. H. C. Knight, M. Emory and N. Callahan.—p. 381.
Juvenile Cataract in Association with Dermatoses (Cataracta Syndermatologica). D. M. Rolett.—p. 389.
Cholesterinosis Lentis. P. Georgariou and O. Wolfe.—p. 394.

American Journal of Orthopsychiatry, New York

14:189-380 (April) 1944. Partial Index

- Analysis of Disturbed Adolescent Girl and Collaborative Psychiatric Treatment of Mother. Adelaide M. Johnson and Dora Fishback.—p. 195.
Infant Reactions to Restraint: Problems in Fate of Infantile Aggression Phyllis Greenacre.—p. 204.
The Parent in Children's Psychiatric Clinic. Katharine M. Wickman and W. S. Langford.—p. 219.
Did Oedipus Have an Oedipus Complex? Sofie Lazarsfeld.—p. 226.
Rorschach Test in Case of Character Neurosis. S. F. Beck.—p. 230.
Mosaic Test: I. Evaluation of Its Clinical Application. B. L. Diamond and H. T. Schmale.—p. 237.
Intelligence Level and Psychotherapy with Problem Children. G. Kriegman and Josephine R. Hilgard.—p. 251.
Psychologic Problems of Later Maturity. G. Lawton, Jeanne G. Gilbert, M. A. Seidenfeld, L. S. Selling, H. R. de Silva and I. L. Peters.—p. 266.
Preliminary Investigation for Normative Study of Fluency: Clinical Index to the Severity of Stuttering. C. H. Voelker.—p. 285.
Correctional Institution in Etiology of Chronic Homosexuality. M. S. Greco and J. C. Wright.—p. 295.
Psychopathic Behavior. A. N. Foxe.—p. 308.
Persistent Enuresis in Adults. M. L. Wadsworth.—p. 313.
Psychiatric Patient in Wartime Community. J. Froesch.—p. 321.

Annals of Internal Medicine, Lancaster, Pa.

20:361-558 (March) 1944

- Military Medicine: Old and New. C. C. Hillman.—p. 361.
Aviation Medicine. B. Groesbeck Jr.—p. 367.
Industrial Medical Problems in War Production. T. L. Hazlett.—p. 371.
Management and Prevention of Civilian War Gas Injury. C. D. Leake and D. F. Marsh.—p. 376.
Dermatoses Incident to Industrial and Domestic Occupations. E. S. Lain.—p. 390.
Military Dermatology. L. H. Warren.—p. 395.
*Role of Congestive Heart Failure in Production of Edema of Acute Glomerulonephritis. J. S. LaDue.—p. 405.
Multiple Peripheral Neuritis Occurring with Sulfonamide Therapy. M. A. Blankenhorn.—p. 423.
Why Plasma? R. O. Meuth.—p. 431.
Electrocardiographic Changes After Acute Loss of Blood. D. Scherf and S. D. Klotz.—p. 438.
Primary Carcinoma of Liver. D. L. Wilbur, D. A. Wood and F. M. Willett.—p. 453.
Dissecting Aneurysm of Aorta in Young Individuals, Particularly in Association with Pregnancy, with Report of Case. M. A. Schnitzer and C. A. Bayer.—p. 486.
Raw Food Diet: Therapeutic Agent. A. A. Holbrook.—p. 512.

Congestive Heart Failure in Edema of Acute Glomerulonephritis.—LaDue studied 12 patients with acute glomerulonephritis complicated by peripheral edema. The patients were placed on a strict bed rest and given no medication except magnesium sulfate to control convulsions. Four patients were given a low protein, low salt diet, 4 a high protein, low salt diet and 4 the regular house diet. There was no restriction of fluids, but the intake and output were charted. Daily measurements of venous pressure, circulation time, blood pressure, weight and degree of pulmonary, liver or peripheral edema were recorded. Frequent teleroentgenograms and electrocardiograms were made. The urine was examined at least twice a week and blood urea and phenolsulfonphthalein excretion tests were

done. Blood proteins and albumin globulin ratios were determined. With the severity of heart failure as a basis for classification, the patients fall into three groups. The patients of group 1 had no symptoms of congestive heart failure except edema, but careful study revealed cardiac dilatation and elevated venous pressure. Patients in group 2 had, in addition to edema and elevated venous pressure, moderate to pronounced dyspnea and orthopnea. Patients comprising group 3 had such severe signs and symptoms of congestive heart failure that the administration of digitalis was necessary. The earliest objective evidence of improvement of the heart failure in 7 of 8 patients not given digitalis was a fall in blood pressure; the return to normal of the venous pressure and the disappearance of edema occurred slightly later. There was a significant decrease in the diastolic heart volume of these patients after compensation had been established. The circulation time was normal or low in 11 of 12 patients studied, despite an elevation of the venous pressure. The pulmonic second sound was accentuated in 11 of 12 patients, suggesting the possibility of pulmonary hypertension.

20:559-732 (April) 1944

Clinical Significance of Rh Factor, with Comments Concerning Laboratory Problems. R. R. Kracke and W. R. Platt.—p. 559.

Metabolic Studies in Patients with Cancer of Gastrointestinal Tract: VIII. Chemical Composition of Liver, Especially in Patients with Gastrointestinal Cancer. I. M. Ariel, J. C. Abels, Helen T. Murphy, G. T. Pack and C. P. Rhoads.—p. 570.

Id. IX. Effects of Dietary Constituents on Chemical Composition of Liver, Especially in Patients with Gastrointestinal Cancer. J. C. Abels, I. M. Ariel, Helen T. Murphy, G. T. Pack and C. P. Rhoads.—p. 580.

Bronchial Asthma: Classification Based on Etiologic and Pathologic Factors. M. B. Cohen.—p. 590.

Migraine Headaches Relieved by Hypoglycemic Reaction: Report of 2 Cases. S. J. Tillim.—p. 597.

*Parenteral Use of Sodium Lactate Solution in Prevention of Renal Complications from Parenterally Administered Sodium Sulfadiazine. D. R. Gilligan, J. A. Dingwall III and W. McDermott.—p. 604.

Treatment of Meningococcus Infections with Especial Reference to Waterhouse-Friderichsen Syndrome. F. W. Bush and F. R. Bailey.—p. 619.

*Anabolic Effects of Androgens and Somatic Growth in Man. A. T. Kenyon, Kathryn Knowlton and Irene Sandiford.—p. 632.

Malaria in Army. T. T. Mackie.—p. 655.

Coronary Heart Disease: Angina Pectoris, Acute Coronary Insufficiency and Coronary Occlusion.—p. 661.

Small Intestinal Disorders in Avitaminosis. N. Learner, H. M. Stauffer and C. L. Brown.—p. 675.

Sodium Lactate for Prevention of Renal Complications from Sodium Sulfadiazine.—Gilligan and his associates show that the effectiveness of adjuvant alkali therapy in preventing renal complications from sulfadiazine is attributable to the fact that alkalization of the urine increases the solubility of sulfadiazine and its N-acetyl derivative. They review observations on approximately 100 patients to whom sodium lactate was administered while receiving sodium sulfadiazine parenterally as prophylactic therapy before and after gastric or intestinal resections for ulcer or carcinoma or in the treatment of abdominal abscess or peritonitis. They found that alkalization of the urine with sixth molar sodium lactate solution administered parenterally prevents crystalluria and renal complications consequent to crystalluria during therapy with the usual doses of parenterally administered sodium sulfadiazine. The initial dose of sodium lactate required to alkalinize the urine at the onset of therapy with sodium sulfadiazine depends on the degree of acidosis present and varies usually from 500 to 1,500 cc. of sixth molar sodium lactate solution in adults with normal kidney function. Thereafter, 1,100 cc. of sixth molar sodium lactate solution daily is usually sufficient to maintain the urine alkaline and to prevent crystalluria from the sulfadiazine. The plasma carbon dioxide content is not greatly affected by this dosage of lactate solution. No evidence of clinical alkalosis was observed. Caution must be exercised to prevent alkalosis when attempting to alkalinize the urine of patients with nephritis. Studies on the sulfadiazine concentrations of blood following intravenous injection of sodium sulfadiazine convinced the authors that it is advisable to administer the drug in the relatively low concentration of 0.5 per cent in sixth molar sodium lactate solution or certain other parenterally utilizable isotonic solutions rather than in 5 per cent solution in water. They suggest that parenteral sodium lactate therapy as prescribed here would similarly be of value in protecting against renal complications from parenteral administration of other sulfonamide drugs.

Androgens and Somatic Growth in Man.—Kenyon and his collaborators review data on precocious puberty in boys with interstitial cell tumors of the testis and describe the association of somatic growth with the more familiar aspects of androgen action. Testosterone propionate and chorionic gonadotropin induce retention of nitrogen, inorganic phosphorus, sulfate and potassium in amounts so large as to necessitate the assumption of increase in the mass of nongenital tissue. Methyltestosterone has similar properties at least in several respects. Sodium and chloride are also retained for a period with these agents. Calcium retention can be induced in certain subjects with testosterone propionate. Creatinuria may be reduced by testosterone propionate but is increased by methyltestosterone. Basal heat production in the eunuchoid may be increased by testosterone propionate and methyltestosterone. Growth in height and weight of the undergrown underdeveloped boy may be produced by chorionic gonadotropin, testosterone propionate or methyltestosterone. Maturation of bony structure occurs, but closure of the epiphyses is not readily induced and presumably requires prolonged and heavy dosage. The testis is conceived as exerting profound general anabolic effects and thus accelerating the somatic growth of the boy. It is possible that feminine androgens similarly influence the growth of the girl. Certain nongenital sites of new tissue deposit in man under the influence of the androgens seem strongly suggested. These are the skeleton and the skeletal musculature. The kidney and other organs may be affected. The anabolic effects of the testis do not appear to be exerted either through the anterior lobe of the pituitary body or through the adrenal cortex. The mature normal testis is not exerting this anabolic or somatotrophic influence to the fullest extent to which the organism can respond. Since age does not seriously limit the metabolic response to the androgens, unknown opposing forces must operate to achieve the nitrogen equilibrium characteristic of maturity.

Archives of Ophthalmology, Chicago

31:279-366 (April) 1944

Acid-Base Tolerance of Cornea. J. S. Friedenwald, W. F. Hughes Jr. and H. Herrmann.—p. 279.

*Meningococcal Conjunctivitis. A. B. Mangiaracine and A. Pollen.—p. 284.

Di-N-Butylcarbamoylcholine Sulfate: New Cycloplegic and Mydriatic Drug. K. C. Swan and N. G. White.—p. 289.

Healing of Iris in Rabbits Following Experimental Iridectomy. Ruby Kathryn Daniel.—p. 292.

Paralysis of Divergence Due to Cerebellar Tumor. O. Lippmann.—p. 299.

Further Experiences with System of Intracapsular Extraction of Cataract. D. B. Kirby.—p. 302.

Bowen's Disease of Cornea. C. Weskamp.—p. 310.

Diagnostic Value of Monocular Occlusion. K. L. Roper and R. E. Bannon.—p. 316.

Catgut Sutures for Closure of Deep Corneoscleral Wound in Operations for Cataract: Preliminary Report. F. A. Davis.—p. 321.

Two Plastic Operations for Repair of Orbit Following Severe Trauma and Extensive Comminuted Fracture. J. M. Converse.—p. 323.

Practicability of Use of Contact Lenses at Low Atmospheric Pressures. C. E. Jaekle.—p. 326.

Staphylococcal Thrombophlebitis of Cavernous Sinus: Report of Case, with Recovery with Chemotherapy and Heparin. D. Edelson.—p. 329.

Infection of Lymphoid Tissue of Pharynx and of Conjunctiva. H. Waldapfel.—p. 331.

Meningococcal Conjunctivitis.—Mangiaracine and Pollen describe 10 cases of acute suppurative conjunctivitis of meningococcal origin all of which occurred within a five month period. In none was there a history of exposure or general prodromal symptoms. The ages varied from 14 weeks to 15 years. Frank meningitis developed in 1, and meningococcal septicemia with abortive meningitis in another. Cultures of material from the eyes yielded type I meningococci in 4 other patients and type II meningococci in 2. In the first 2 patients the organism was not typed. Both eyes were involved in 6 patients and one eye only in 4. There was corneal involvement in 5 patients, superficial ulcers developing in 2 and corneal edema alone in 3. In none did a permanent residual ocular change follow therapy. Treatment consisted of local and oral chemotherapy in 5 instances. Four patients received only local chemotherapy and 1 irrigations with zinc sulfate alone. The oral chemotherapy was given only to patients with corneal involvement or systemic or meningeal symptoms. Neither the degree nor the course of the ocular infection seemed to be improved by the addition of oral administration of sulfadiazine, and the patient who received

zinc sulfate alone did as well as the rest. The average length of hospitalization (exclusive of the cases with meningeal involvement) was eight days, the ocular discharge subsiding in three to five days and the eyes becoming white and the process quiescent in seven days. The apparent recent increase in the incidence of cases of suppurative conjunctivitis of meningococcus origin, previously considered of infrequent occurrence, leads one to believe that previous cases may have been missed because of the morphologic resemblance of the organisms to those in the neisserian group. Differential cultures will easily lead to the correct diagnosis, a factor of great importance when one is dealing with an organism of such potential epidemic virulence as the meningococcus.

Archives of Otolaryngology, Chicago

39:287-358 (April) 1944

Surgical Management of Compound Depressed Fracture of Frontal Sinus, Cerebrospinal Rhinorrhea and Pneumocephalus. E. S. Gurdjian and J. E. Webster.—p. 287.

Anatomic Variations of Lateral and Sigmoid Sinuses. J. G. Waltner.—p. 307.

*Ménière's Disease: Histopathologic Observations. J. R. Lindsay.—p. 313. Infection of Nose and Throat Caused by Pneumococci of Type III. W. J. Knauer.—p. 319.

*Tonsillectomy and Poliomyelitis: One Case of Poliomyelitis Following 8,915 Tonsillectomies. J. R. Page.—p. 323.

New Method for Repair of Small Loss of Alar Rim. A. J. Barsky.—p. 325.

Industrial Noise Hazard. D. A. McCoy.—p. 327.

Evaluation of Submucosal Shrinking Methods for Chronic Nasal Obstructions. M. Tamari and W. Busby.—p. 331.

Muscles and Cartilages of Nose from Standpoint of Typical Rhinoplasty. B. Griesman.—p. 334.

pH of Nasal Mucosa Measured in Situ. W. J. Nungester and A. K. Atkinson.—p. 342.

Histopathologic Observations in Ménière's Disease.—Since the discovery by Hallpike and Cairns of a labyrinthine dropsy in the affected ear of 2 patients with Ménière's disease there have appeared a number of similar microscopic observations. Lindsay reports clinical and microscopic observations in a proved case of Ménière's disease. A man aged 47 fell during an attack of vertigo, suffered a fracture of the skull and died. In 1939 he had been examined at the Mayo Clinic and was considered as having Ménière's disease. The microscopic studies of the cochlea in this case corresponded closely to those in other cases. The hearing loss for low tones in the affected ear must have been associated with the hydrops of the labyrinth. Such a loss for low tones has been recognized as a primary characteristic of Ménière's disease. The deafness of Ménière's disease has been usually described as of nerve type because of the positive Rinne test. The primary low tone involvement and the fluctuations in threshold do not seem compatible with a neural lesion. The clinical features of deafness appear more compatible with some interference in the conduction medium in the inner ear. The histologic picture in this as well as in the 2 ears reported earlier by the author seems to lend support to this explanation of auditory disturbances in that the neural elements appeared well preserved in contrast to the great distortion of the membranous structures. In place of the normal column of perilymph from the oval window to the round window, the column had been broken up or distorted by the dilated saccule and cochlear duct at the expense of the perilymphatic cistern and vestibular scala. Such an architectural rearrangement seems a probable basis for a disturbance in the function of the fluid column. The dilatation of the saccule has been a fairly constant feature. The saccule has herniated into the small end of the horizontal semicircular canal in some, and in others there has been herniation of the utricle. In this case, as in the 2 cases formerly reported by the author, there has been a consistent tendency for herniation to develop from the utricle adjacent to the ampullae of the semicircular canals with distortion of the outer wall of the ampullae. This distortion of the ampullary wall offers a reasonable explanation for the disturbances of vestibular function. Permanent distortion of the ampulla would explain impairment of the vestibular response in late stages, while temporary distortion would result in an attack of vertigo and possibly also a temporary decrease in caloric response.

Tonsillectomy and Poliomyelitis.—Page presents figures on poliomyelitis for the years from 1937 to 1941 inclusive obtained from the Department of Health of the City of New York. An increase in the number of cases every other year was evident. As 1937, 1939 and 1941 were the years in which the disease was most prevalent, the patients who had tonsillectomies performed on them during those years were communicated with by mail; 27,849 cards were sent out by the Manhattan Eye, Ear and Throat Hospital. A total of 8,915 replies were obtained with only 1 instance of poliomyelitis, which occurred in August 1937, approximately a month after tonsillectomy. Six replies for the year 1937 reported illness other than poliomyelitis. Two replies for 1939 reported illnesses other than poliomyelitis. The data in 7 replies that reported illness after tonsillectomy all mentioned some spinal involvement.

Archives of Surgery, Chicago

48:267-354 (April) 1944

Lobectomy of Liver: Report of 3 Cases. K. L. Pickrell & R. C. Clay.—p. 267.

Fractures of Carpal Scaphoid Bone in Industry and in Military Service. M. G. Henry.—p. 278.

Heat and Mustard Gas Burns: Comparison. A. R. Koontz.—p. 284.

Untoward Effects of Various Substances Recommended for Burns or Wounds: Experimental Tests on Rats. R. D. Baker.—p. 300.

Naval Casualties in Base Hospital in South Pacific. G. Crile.—p. 305.

Comparative Value of Some Blood Substitutes Used for Treatment of Experimental Shock. C. C. Scott, H. M. Worth and E. D. Robbins.—p. 315.

Giant Nerve of Thigh Successfully Treated by Complete Excision and Primary Grafting. K. L. Pickrell and R. C. Clay.—p. 319.

Review of Urologic Surgery. A. J. Scholl, F. Hinman, A. von Lichtenberg, A. B. Hepler, R. Gutierrez, G. J. Thompson, E. N. Cook, E. Wildbolz and V. J. O'Connor.—p. 325.

Bulletin New York Academy of Medicine, New York

20:203-252 (April) 1944

Postcholecystectomy Syndrome and Its Treatment. R. Colp.—p. 203. Parenteral Fluids and Food in Gastrointestinal Disease. R. Elman.—p. 220.

Nutrition in Medicine. F. J. Stare.—p. 237.

20:253-316 (May) 1944

Cancer of Colon. H. Cave.—p. 255.

Pathologic Physiology of Gastric and Duodenal Ulcer. H. Shay.—p. 264. Primary Atypical Pneumonia in General Hospitals and in Private Practice. N. Plummer and H. K. Ensworth.—p. 292.

Canadian Journal of Public Health, Toronto

35:137-174 (April) 1944

Rehabilitation of Tuberculosis Patient—Manitoba Program. T. A. J. Cummings.—p. 137.

Present Problems in Industrial Health. W. H. Cruickshank.—p. 144.

Cancer Control in Saskatchewan. R. O. Davison.—p. 150.

Recent Trends in Nutrition. E. W. McHenry.—p. 154.

Survival of Eberthella Typhosa in Cheddar Cheese Manufactured from Infected Raw Milk. A. G. Campbell and J. Gibbard.—p. 158.

Florida Medical Association Journal, Jacksonville

30: 405-456 (April) 1944

*Treatment of Creeping Eruption with Fuadin. J. F. Wilson.—p. 425. Role of Fluids Administered Orally in Causing Postoperative Distention Following Cesarean Section and Gynecologic Operations: Report of 100 Cases. B. F. Hart.—p. 426.

Fuadin in Creeping Eruption.—Wilson restricts the term creeping eruption to the type caused by *Ancylostoma braziliense*, the larva of hookworm. The peak of the season for this larva migrans is in August. It is more prevalent along the coastal regions of the Gulf of Mexico and the South Atlantic than in other parts of the country. Most treatments hitherto recommended have been unsatisfactory. Freezing with ethyl chloride, one of the most effective methods, involves great expense. Smith's report in THE JOURNAL of Nov. 13, 1943, page 694, on the systemic treatment of the disease with fuadin, induced Wilson to employ it. He administered fuadin in 7 cases. In the first case five injections were given at daily intervals. Since no itching was felt after the first dose he decided to give only one injection in the subsequent cases. In 2 cases a second injection was required. The possibility of antimony poisoning is practically eliminated if 1 or 2 doses will suffice. Fuadin appears to be worthy of trial in the treatment of larva migrans.

Journal of Clin. Endocrinology, Springfield, Ill.

4:47-94 (Feb.) 1944

- Dwarfism Associated with Microcephalic Idiocy and Renal Rickets. S. J. Glass.—p. 47.
- Excretion of Estrogen After Injection of Estradiol and Estrone into Men with Cirrhosis of Liver. S. J. Glass, H. A. Edmondson and S. N. Soll.—p. 54.
- Some Metabolic Effects of Thiouracil, with Particular Consideration of Adrenal Functions. R. H. Williams, G. W. Bissell, B. J. Jandorf and J. B. Peters.—p. 58.
- *Treatment of Acne Vulgaris: Preliminary Study on Value of Pregnant Mare Serum. C. H. Birnberg and C. R. Rein.—p. 65.
- *Hyperinsulinism as Etiologic Factor in Acute Rheumatic Fever. E. M. Abrahamson.—p. 71.
- Role of Endocrines in Regulation of Blood Sugar. S. Soskin.—p. 75.

Pregnant Mare Serum for Acne Vulgaris.—Birnberg and Rein report studies on pregnant mare serum from which they precipitate a hormone which is practically protein free. The material was studied on guinea pigs. The preparation was first given to patients intramuscularly. Since no effects resulted, intravenous injection was tried. The dosage varied from 400 to 800 international units intravenously twice a week. More than 5,000 injections have been given without a single reaction. The authors report results for a study of 17 female patients with acne vulgaris and associated menstrual disturbance who had received the usual treatment, including roentgen and ultra-violet irradiations, various types of vaccine injections, vitamin therapy, strict dietary limitations and various forms of local medication with slight or only temporary clinical improvement. Examination revealed negative follicle stimulating hormone and negative estrogens in 12 of the 17 patients. After treatment with the pregnant mare serum preparation no change occurred in 2 patients and normal values were found in 10 patients. Five patients failed to return for a recheck. Fourteen of the 17 patients were definitely improved by injections of pregnant mare serum. The administration of estrogen alone aggravated the eruption. The authors do not imply that pregnant mare serum is a cure for acne vulgaris. Certain cases respond to different types of endocrine therapy. Acne in a female which is influenced by the menstrual cycle should have a thorough endocrine study to determine the primary difficulty, and the condition should be treated accordingly.

Hyperinsulinism in Acute Rheumatic Fever.—Abrahamson calls attention to the fact that diabetes (hypoinsulinism) and rheumatic fever rarely coexist. He cites evidence that allergic disorders are characterized by hyperinsulinism. Since rheumatic fever is a variety of bacterial allergy, it was postulated that rheumatic subjects should also have hyperinsulinism. Dextrose tolerance tests of 11 patients having rheumatic fever disclosed that such was the case. The patients were placed on frequent feeding with a high fat and low carbohydrate diet. Sweets and other rich carbohydrate foods and caffeine beverages were forbidden. The patients were instructed to follow the diet closely for three months. They were permitted gradually to drop the extra feedings. By the end of six months they were on the usual three meals a day schedule. They continued to avoid caffeine and sweets and they kept the consumption of potatoes and other carbohydrate rich foods to a minimum. After these six months the patients were tested again. The diet had the anticipated effect of eliminating the hyperinsulinism. All of these patients went through two winters without further rheumatic attacks.

Journal of Immunology, Baltimore

48:213-270 (April) 1944

- Specific Cutaneous Reaction in Persons Infected with Virus of Herpes Simplex. F. P. O. Nagler.—p. 213.
- Coordinate Effects of Electrolyte and Antibody on Infectivity of Bacteriophage. A. D. Hershey, G. M. Kalmanson and J. Bronfenbrenner.—p. 221.
- *Rh Antibodies in Maternal Circulation Without Clinical Manifestations of Erythroblastosis in Child. G. C. Dockeray and H. Sachs.—p. 241.
- Studies on Virus Immunity: Experiments with Viruses of Rabies and Equine Encephalomyelitis. U. Friedemann, A. Hollander and S. Bornstein.—p. 247.
- Studies on Penicillin: I. Production and Antibiotic Activity. Clara M. McKee, Geoffrey Rake and A. E. O. Menzel.—p. 259.

Rh Antibodies in Maternal Circulation Without Erythroblastosis in Child.—Dockeray and Sachs point out that with regard to the homozygous and heterozygous genotype of Rh positive individuals, as suggested by Landsteiner and Wiener

in 1941, the probability of erythroblastosis would amount to about 9 per cent. Erythroblastosis probably occurs much less frequently than this figure. It follows that when the mother is Rh negative and the fetus is Rh positive certain conditions must be fulfilled for the disease to develop. The fetal red cells must pass the placental barrier, the mother's body must be able to react with antibody formation and the anti Rh isoantibodies must pass the placental barrier to cause erythroblastosis in the fetus. The authors examined serums of pregnant women before delivery for Rh antibodies. They detected irregular agglutinins in 3 of 61 antepartum cases. A fourth case was reported previously. In their observations mothers whose serum contained great amounts of anti Rh agglutinins did not give birth to infants exhibiting clinically demonstrable erythroblastosis. It follows that Rh antibodies may be found in the mother without erythroblastosis occurring in the child. The baby need not be erythroblastic even when all conditions seem to be fulfilled, that is an Rh negative mother bearing an Rh positive fetus with a strong formation of Rh antibodies in the mother. Since all 4 women were Rh negative, it is justifiable to draw the same conclusion from the other observations. Isoimmunization of the mother from the fetus in utero is apparently not always sufficient in itself to cause erythroblastosis. Perhaps the isoantibodies may pass the placental barrier only in certain conditions changing in the course of pregnancy. Since the passage of fetal red cells necessary for the antibody formation must be more difficult than that of antibodies, it appears likely that particular conditions or temporary damage in the placental barrier may be responsible for the transmission of antibodies from the mother to the fetus or for their action on the fetal red cells. The authors also observed 3 instances of erythroblastosis in infants whose mothers' blood contained at most only traces of anti Rh agglutinins.

Journal of Neurosurgery, Springfield, Ill.

1:83-102 (March) 1944

- Study of Gnosis, Praxis and Language Following Section of Corpus Callosum and Anterior Commissure. A. J. Akelaitis.—p. 94.
- *Physiologic Basis of Concussion. A. E. Walker, J. J. Kollros and T. J. Case.—p. 103.
- *Results of Surgical Removal of Protruded Lumbar Intervertebral Disks. B. M. Shinnars and W. B. Hamby.—p. 117.
- Peripheral Nerve Surgery—Diagnostic Considerations. C. C. Coleman.—p. 123.
- Peripheral Nerve Surgery—Technical Considerations. R. G. Spurling.—p. 133.
- Peripheral Nerve Surgery—Postoperative Rehabilitation. W. M. Craig.—p. 149.
- *Treatment of Painful Phantom Limb by Removal of Postcentral Cortex. C. G. de Gutiérrez-Mahoney.—p. 156.

Physiologic Basis of Concussion.—According to Walker and his associates, cerebral concussion is generally agreed to be a traumatically induced derangement of the nervous system characterized by temporary impairment of consciousness, dizziness, mild confusion and headache, and unassociated with gross anatomic changes. Since Duret's experimental study, technical procedures for precise measurement of intracranial changes have been developed and some understanding of neural mechanisms has been acquired, so that now the phenomena of concussion may be placed on a sound physiologic basis. The authors made studies on 151 cats, 15 dogs and 21 monkeys. Analysis of the clinical manifestations in these animals show that they are the result of intense excitation of the central nervous system at the moment of the blow to the head. At the moment of concussion an electrical discharge occurs within the central nervous system. In the vinethene-procaine anesthetized animal the cortical activity is increased in frequency following the initial discharge (after discharge) for ten to twenty seconds and then decreases until there is little spontaneous activity (extinction). Within several minutes the electroencephalogram becomes practically normal again. At the moment of a blow on the skull a sudden increase in pressure at the site of impact occurs with pressure waves being transmitted throughout the intracranial cavity. It is concluded that these mechanical forces produce a breakdown of the polarized cell membranes of many neurons in the central nervous system, thus discharging their axons. This

intense traumatic excitation is followed by the same electroencephalographic, chemical and clinical phenomena which characterize intense stimulation of the nervous system by electrical, chemical or other agents.

Removal of Protruded Intervertebral Disks.—Shinners and Hamby investigated the symptomatic relief obtained by 140 patients who underwent removal of protruded intervertebral disks. The shortest period following operation was six months. One hundred and sixty operations were performed on 140 patients. There were no fatalities. At the first operation 116 patients were found to have protruded disks. Eight patients had recurrences subsequently at the same level. Three patients had second disk protrusions at a new level. Twenty-four patients underwent exploration without discovery of disk protrusions. The first 9 patients were subjected to more or less complete laminectomy. Thereafter hemilaminectomy was employed. The interlaminar approach has been principally employed. Spinal fusion was done at the initial operation only if the back was frankly unstable. Otherwise it was done only when the simpler operation proved ineffective. Fusion was performed on 13 of the 116 patients from whom disk protrusions were removed and on 5 of 24 patients who on exploration proved to be without protrusions. Spinograms were made of 91 patients. The results of these were not only confusing but often misleading. Of the 87 patients who replied to follow-up questionnaires, 49 considered themselves cured, 48 believed they were improved and 2 thought they were worse. A comparison of the results in private and compensation cases showed a striking parallel.

Treatment of Phantom Limb by Removal of Postcentral Cortex.—The patients seen by de Gutiérrez-Mahoney felt pain in every phantom, but few were disabled by it. The unpleasant sensations included undue warmth, itching or simply distress due to overconsciousness of the painless phantom. These discomforts may be intermittent but are usually continuous. Many patients suffer a deep, agonizing torture due to the sensation of the limb being tightly compressed, which may be so severe that the victims are willing to undergo any kind of treatment. Many ultimately become morphine addicts. A man who had caught his right hand in a circular saw, which amputated the terminal phalanx of the middle finger and the terminal and half of the middle phalanx of the ring finger, was conscious of the presence of the amputated fingers. These phantoms were extremely painful, felt raw, itched and ached. The fingers become powerfully flexed and the pain was "killing." On Aug. 15, 1940 he suddenly became unconscious and partially paralyzed on the right side. He recovered considerable function of the limbs, and there was little if any sensory deficit. There was no alteration of the phantom fingers or pain. He had a few convulsions, after each of which the pain in the phantom disappeared for a day but later recurred. At an operation the left postcentral cortex was stimulated and the area corresponding to the middle and ring fingers for the right hand was determined and excised by subpial resection. There was an immediate disappearance of the phantom fingers and the pain. There had been no recurrence two years after the operation.

Journal of Thoracic Surgery, St. Louis

13:67-168 (April) 1944

- Roentgen Rays in Treatment of Carcinoma of Bronchus, with Analysis of 69 Cases Treated in State of Wisconsin General Hospital from 1933 to 1943. E. A. Pohle and Evelyn L. Siris.—p. 67.
Diagnosis and Treatment of Bronchiogenic Cysts of Mediastinum and Lung. R. K. Brown and L. L. Robbins.—p. 84.
*Thoracoplasty and Contralateral Pneumothorax in Bilateral Pulmonary Tuberculosis. R. W. Buxton and P. V. O'Rourke.—p. 106.
*Intrathoracic Neurogenic Tumors. E. M. Kent, B. Blades, A. R. Valle and E. A. Graham.—p. 116.
Roentgenographic Demonstration by Diodrast of Pleural Walls in Open Empyema. J. Gordon.—p. 162.

Thoracoplasty and Contralateral Pneumothorax in Bilateral Pulmonary Tuberculosis.—Buxton and O'Rourke show that in a certain group of tuberculous patients bilateral pneumothorax, although highly desirable, is technically impossible. These patients often are either denied collapse therapy or are treated only unilaterally. Thoracoplasty for the otherwise untreated lesion, in conjunction with a contralateral pneumothorax, is usually considered unwise for technical reasons and

valueless because of the final results. This study has been undertaken to determine the desirability of thoracoplasty in the presence of a contralateral pneumothorax and to analyze the immediate and late results of this form of combined therapy. The series is composed of 44 unselected consecutive patients having a unilateral pneumothorax, on whom 174 thoracoplasty stages have been performed for the lesions in the lung opposite to the pneumothorax. All patients had positive sputum on smear or concentrate examination at the time thoracoplasty was begun. In general the thoracoplasty was delayed until the lesions beneath the contralateral pneumothorax gave satisfactory evidence of progressive improvement. In 25 out of 30 patients there was regression of the lesions with closure of existing cavities on the side of the pneumothorax. In the other 5 the cavities were smaller and the progress of the disease indicated probable eventual closure. Serial roentgenograms showed the disease to be stationary on the pneumothorax side in 14 cases at the time the thoracoplasty was begun. Fifteen, or 34 per cent, of the 44 patients had some degree of tuberculous laryngitis or bronchitis. Only the larynx of 3 patients was involved and only the bronchi of 12 were involved. In 13 cases the planned thoracoplasty program was not completed because of complications. The early mortality rate (within three months) in this series was 6.8 per cent, and the late mortality rate was 22.7 per cent. The total mortality rate was 29.5 per cent. All living patients have been followed for more than one year since the last stage of their primary thoracoplasty. Among the 31 living patients (17 in sanatoriums and 14 at home) there has been conversion of sputum in 64.5 per cent and closure of the cavity under the thoracoplasty in 83.8 per cent. Twelve of the 14 patients at home are capable of pursuing a gainful occupation. The authors conclude that the performance of thoracoplasty in the presence of a contralateral pneumothorax is desirable and the results justify its more frequent employment in the treatment of bilateral pulmonary tuberculosis.

Intrathoracic Neurogenic Tumors.—Kent and his co-workers present the histories of 18 patients with intrathoracic nerve tumors treated at the Barnes Hospital in St. Louis and report 3 other cases of probably but not proved neurogenic tumors. A collected series of 105 cases from the literature is reviewed. A high percentage of the tumors were malignant. Of the 18 patients treated by the authors 7 had malignant tumors, and of the 105 cases collected from the literature 37 per cent were malignant. There is therefore no justification for the all too common opinion that suspected nerve tumors of the thorax do not require operation unless or until pressure effects have been noted. It would seem wiser to take the position that the presumptive diagnosis of such a tumor constitutes an indication for operation. Since the majority of the tumors are in the posterior mediastinum, a posterior operative approach is used most frequently. If the patient has an hourglass tumor it is preferable to remove both the intraspinal and the intrathoracic parts at the same operation. If such extensive surgery should be contraindicated at one stage, the intraspinal portion should be the point of attack.

Kentucky Medical Journal, Bowling Green

42:93-124 (April) 1944

- Bacillary Dysentery. E. L. Turner.—p. 93.
Administrative Control of Syphilis. R. E. Teague.—p. 102.
Gas Gangrene. W. H. Cole.—p. 109.
Forgotten Man. B. W. Smock.—p. 112.
"Compensationitis" After Ocular Injury. C. L. Woodbridge.—p. 113.
Identical Twins with Psychosis. H. E. Rubin.—p. 115.

42:125-152 (May) 1944

- Shock. E. A. Stead Jr.—p. 127.
Intestinal Obstruction. W. H. Cole.—p. 130.
Amebiasis, Other Intestinal Protozoal Infections, Helminthous Dysentery. E. L. Turner.—p. 135.
Pneumonia, Malaria, Appendicitis in 1 Case. S. H. Flowers.—p. 143.
Thrombosis. A. J. Schwartzman.—p. 144.
Allergy in Infectious Diseases. F. A. Simon.—p. 145.

New Jersey Medical Society Journal, Trenton

41:75-116 (March) 1944

- Social Security. W. J. Ellis.—p. 81.
Indication for Conservatism in Surgical Treatment of Rectal Cancer. G. T. Pack and J. S. Gallo.—p. 85.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Heart Journal, London

6:1-52 (Jan.) 1944

- Adrenal-Sympathetic Syndrome: Chromaffin Tissue Tumor with Paroxysmal Hypertension. R. Mackeith.—p. 1.
 Reciprocal Beating Initiated by Ventricular Premature Systoles. R. Langendorf, L. N. Katz and A. J. Simon.—p. 13.
 *Heart Failure in Aged. T. H. Howell.—p. 20.
 Case of Myxoma of Left Auricle. R. B. Thompson.—p. 23.
 *Circulatory Failure Due to Vitamin B Deficiency. A. Schott.—p. 27.
 Cardiac Output in Man by Direct Fick Method: Effects of Posture, Venous Pressure Change, Atropine and Adrenalin. J. McMichael and E. P. Sharpey-Schafer.—p. 33.
 The Heart in Myotonia Atrophica. W. Evans.—p. 41.
 Synchronous Heart Sound Recording by Application of Second Channel to Cosor-Robertson Cardiograph. G. D. Dawson and A. M. Jones.—p. 48.

Heart Failure in Aged.—According to Howell, heart failure in old age differs in many ways from that in earlier life. Before middle age the pathologic state of the heart itself is all important; after this the condition of the peripheral vessels also must be taken into account. In the young, recovery is more rapid and lasting; in the old, relapses are the rule. Howell analyzes cardiac failure in 75 old or elderly persons. The ages of the patients ranged from 62 to 92. No congenital or rheumatic heart disease was found, and only 1 patient had syphilitic heart disease. The most common causes of cardiac failure were high blood pressure, disease of the coronary artery and myocardial toxemia. Other varieties peculiar to senility seem to result from the inability of the left ventricle to propel the blood against the increased resistance of the thickened and narrowed peripheral arteries. They appear as peripheral ischemia, which may be intermittent or constant. It has been referred to as relative hypotension. The dominant symptoms are usually cerebral in origin. One symptom complex of this type has been described by the author under the name of progressive cerebral ischemia. Here an arteriosclerotic patient with high blood pressure shows first mental confusion, then restlessness or violence, and finally becomes comatose while his systolic figure falls from its previous high grade to the ultimate level (around 100 mm.), at which death ensues in such cases. This syndrome may follow right or left heart failure or may result from myocardial toxemia after an infection, such as pneumonia. Another form is designated as "forward" failure. This is the gradual but steadily increasing feebleness, accompanied by a slowly falling blood pressure. There is no angina pectoris, no congestive failure, no paroxysmal dyspnea, nor are cerebral symptoms prominent. The author stresses the frequency of multiple etiology in heart failure of the aged. He thinks that arterial thickening probably played a part in most of the cases, usually in association with hypertension or disease of the coronary artery. Sometimes myocardial toxemia was superadded, and this made a fatal prognosis almost inevitable.

Circulatory Failure Due to Vitamin B Deficiency.—Schott describes 3 cases of circulatory disturbances due to vitamin B₁ deficiency with special reference to some unusual clinical and electrocardiographic features. Two of the 3 patients took an excessive amount of alcohol; in the third case the condition was caused by deficient diet only. All responded to treatment with vitamin B₁.

British Journal of Radiology, London

17:101-132 (April) 1944

- Treatment of Carcinoma of Lung: Symposium. J. L. Livingstone, R. C. Brock, F. Roberts, J. L. Dobbie and W. L. Harnett.—p. 109.
 New Light on Origin of Craniolacunia. J. B. Hartley and C. W. F. Burnett.—p. 110.
 Case for Diagnosis. J. A. Brocklebank.—p. 114.
 Rectangular Teleradium Fields. M. Lederman, J. R. Clarkson and W. B. Mayneord.—p. 115.
 Postoperative Pneumoperitoneum. J. E. Bannen.—p. 119.
 Instantaneous Stereography. G. L. Rogers.—p. 122.
 Production of Isodose Curves and Calculation of Energy Absorption from Standard Depth Dose Data. W. J. Meredith and G. J. Neary.—p. 126.

British Medical Journal, London

1:447-482 (April 1) 1944

- Etiology and Treatment of Convulsions During Anesthesia: Abstract of a Paper. W. N. Kemp.—p. 447.
 Hysterical Sequelae of Injuries. P. D. Scott and P. Mallinson.—p. 450.
 Chronic Pulmonary Catarrh in Childhood. A. B. Taylor.—p. 453.
 Survey of Vitamin C Level in Wartime in Pregnant Women. A. A. Craig, F. J. W. Lewis and Dorothy Woodman.—p. 455.
 Sudden Death in Labor. R. G. Cooke.—p. 457.

Lancet, London

1:425-456 (April 1) 1944

- Surgery in Forward Area. W. A. Law.—p. 425.
 *Prostigmine and Ephedrine in Myasthenia Gravis. A. Wilson and H. B. Stoner.—p. 429.
 *Ocular Signs of Riboflavin Deficiency. W. J. W. Ferguson.—p. 431.
 Tropical Eosinophilia. B. G. Parsons-Smith.—p. 433.
 Implantation of Testosterone in Cast Pellets. P. M. F. Bishop and S. J. Folley.—p. 434.

Neostigmine and Ephedrine in Myasthenia Gravis.—Wilson and Stoner studied the clinical response to neostigmine, to ephedrine hydrochloride and to neostigmine with ephedrine in myasthenia gravis. The effect of this therapy on the cholinesterase activity of serum was determined in 10 patients with myasthenia gravis. The results obtained provide little if any evidence of relationship between the inhibition of serum cholinesterase and the clinical effect of neostigmine. Recent work on the nature of myasthenia gravis indicates that the essential lesion is a partial block in neuromuscular transmission. Neostigmine has been shown to have two types of action. It inhibits cholinesterase activity and is also capable of reversing the block in neuromuscular transmission produced by curare and some quaternary ammonium salts. Such a dual action might explain the failure to correlate the clinical effects with the inhibition of serum cholinesterase activity, for the anticholinergic action of neostigmine is possibly independent of the inhibition of cholinesterase activity. The action of neostigmine with ephedrine is much greater than that of neostigmine alone. The principal effect of adding ephedrine was relief of diplopia. Where diplopia was not relieved by neostigmine alone it was alleviated during the combined therapy. The effect on asthenia was definitely superior to that of neostigmine alone; the patients volunteered this information without being questioned. In some of the cases ergographic records provided confirmation. As far as duration of the effect was concerned, the increase was between three and four hours. One of the patients, who required 2.5 mg. of neostigmine every hour, was maintained on combined therapy by injection every four hours. Administration of ephedrine by itself produced clinical improvement in only 1 case. In none did it alter the cholinesterase activity of the serum.

Ocular Signs of Riboflavin Deficiency.—Sydenstricker and his associates described in 1940 ocular signs and symptoms which responded to riboflavin therapy. The symptoms were photophobia, sensations of burning or roughness of the eyelids, visual fatigue and sometimes impairment of visual acuity in the absence of refractive errors or pathologic changes in the media. The commonest sign was "circumcorneal injection," often with invasion of the cornea by capillaries from the limbic plexus. Ferguson examined groups of people with the slit lamp and discussed and examined cases with Sydenstricker. He feels that misinterpretation has arisen largely through lack of experience in the use of the slit lamp, through imperfect understanding of the normal variations of the appearance and vascularity of the limbus and through inclusion of corneal vascularization due to other causes than riboflavin deficiency. The mode of anastomosis of the anterior and posterior conjunctival vessels around a normal limbus varies. There are four typical varieties, which demonstrate that formation of capillary loops at the corneoscleral junction and on the limbus itself can be regarded as normal. The vascularization attributed to lack of riboflavin is an extension of the normal limbic vascular system to the true cornea. From the apexes of the existing limbic loops appear fine vessels running more or less toward the true cornea; these "streamers" in turn anastomose with one another to form further loops, from which further streamers and, in turn, loops may be formed. The true cornea may thus become further and further vascularized. These vessels run superficially, immediately under the epithelium, and are of such small caliber that they are

mostly invisible even with an ordinary binocular loupe. With the corneal microscope and slit lamp they show best when observed by light reflected from the iris, and they may readily be missed by direct corneal illumination. Abnormal corneal vascularization with very mild symptoms was found in 7.8 per cent of 422 persons. In 13 cases in which the effect of riboflavin treatment was studied over an adequate period it resulted in cessation of the abnormal corneal circulation. No claim is made that riboflavin deficiency is the only cause of the corneal condition described.

Archivos de Pediatría del Uruguay, Montevideo

15:1-64 (Jan.) 1944. Partial Index

- *Primary Pulmonary Tuberculosis in Infant: Phrenicectomy. R. Cantonnet, H. Cantonnet and J. A. Radice.—p. 23.
- Diagnostic Value of Mester Reaction in Rheumatic Fever in Children: Modified Technic. J. Giampietro and V. H. Vacarezza.—p. 27.

Pulmonary Tuberculosis in Infant.—The case reported by Cantonnet and his collaborators of pulmonary tuberculosis with cavitation in an infant 6 months old controlled by phrenicectomy is the second in the literature. The infant's parents were normal. She had not BCG vaccination, was artificially fed and was in close contact with a tuberculous neighbor. At the age of 4 months she was hospitalized for an acute digestive disorder. The clinical symptoms and physical examination revealed pulmonary tuberculosis. The tuberculin test was positive. Roentgen examination of the thorax showed lymph node and lung tuberculosis. A pulmonary cavity was demonstrated in a roentgenogram at 6 months. Tubercle bacilli were found in the gastric lavage. Phrenicectomy was well tolerated. On a proper dietetic and hygienic regimen the patient gained weight and improved. Repeated examination for bacilli and inoculations of guinea pigs gave negative results. The roentgenograms of the chest showed closure of the pulmonary cavity and limitation of the tuberculous process.

Prensa Médica Argentina, Buenos Aires

30:2481-2522 (Dec. 29) 1943. Partial Index

- *Cirsoid Aneurysm (Racemous Angioma) of Wrist and Palm. V. J. Bertola.—p. 2481.
- Medical Extrapleural Serothorax and Pneumothorax: Technic. P. Rubinstein.—p. 2489.

Cirroid Aneurysm of Wrist and Hand.—Bertola's patient, a girl aged 12 years, presented a tumor mass on the anterior aspect of the wrist and the palm of the hand. This was noted when she was an infant. The tumor became blue and painful as the patient grew. The motility, sensibility and function of the wrist, hand and fingers were normal. There was no pulsation nor aneurysmal bruit. The swelling was irregular and soft on palpation. The operation consisted in ligation of the artery and the vein and of total removal of the tumor. Abnormal communications between venules and arterioles were observed in several areas of the tumor. The clinical diagnosis of cirroid aneurysm was verified by the microscopic study.

Revista Clínica Española, Madrid

10:297-360 (Sept. 15) 1943. Partial Index

- Studies on Malnutrition: Production of Edema with Low Protein Diets. C. J. Diaz, F. Vivanco and R. Mora.—p. 302.
- *Basal Metabolism and Specific Dynamic Action in Nutritional Edema. M. Carmena and E. Gómez Marcano.—p. 305.
- Atypical Generalized Amiloidosis. Miranda Rodrigues and Pulido Valente.—p. 310.

Nutritional Edema.—Carmena and Gomez Marcano studied alterations of basal metabolism and of the specific dynamic action of proteins in 20 cases of nutritional edema. The basal metabolism was lower than normal, decreasing as low as 40 per cent in some cases. There was no correlation between the degree of lowering of the basal metabolism or of the plasma protein level and the severity of edema or of other manifestations of hyponutrition such as diarrhea, bradycardia, arterial hypotension and anemia. The basal rate persisted low for several months after the disappearance of symptoms, but in a number of cases in which it was determined two years after the clinical recovery this value was within the normal range. The decrease in basal metabolism is considered to be a defensive

reaction of the organism when subjected to a low caloric and protein intake and to be accomplished through the reduction of the thyroid activity. The specific dynamic action of proteins measured in 3 cases was found to be low in 1 and low normal in 2. After recovery this value rose to normal or high normal in all cases.

Acta Radiologica, Stockholm

24:343-430 (Oct. 31) 1943

- *Roentgen Diagnosis and Ray Treatment of Gastric Sarcomas, Particularly of Lymphosarcomas and Reticulum Cell Sarcomas. G. Forssman.—p. 343.
- Calcified Thrombosis in Portal System Diagnosed by Roentgen Examination. G. Moberg.—p. 374.
- Roentgenology of Stomach. Y. Seuderling.—p. 384.
- Arteriography in Thrombosis of Carotis Interna. S. Erikson.—p. 392.
- Case of Plasma Cell Mastitis. K. Lübschitz.—p. 403.
- Fornix Backflow in Excretion Urography: Its Significance in Differential Diagnosis of Tuberculosis of Kidney. A. Lindbom.—p. 411.
- *Histologic Picture of Breast Cancer After Preoperative Roentgen Irradiation: Study of 50 Cases. J. Hoffmeyer.—p. 419.

Gastric Sarcoma.—Forssman states that the incidence of gastric sarcoma is given variably as between 0.3 and 8 per cent of gastric malignant neoplasms. It may occur at any age but is most frequent between the ages of 40 and 60. The author reports clinical histories of 9 cases of gastric sarcoma that were treated at the "Radiumhemmet" in Stockholm. In all of these cases operation had been performed because a gastric tumor was diagnosed and carcinoma was suspected. Gross or microscopic examination established the sarcomatous nature of the lesion. In 6 cases a gastric resection was done, whereas in the 3 others only an exploratory excision was made because the neoplasm had advanced to the inoperable stage. The gastric resection was followed by postoperative roentgen treatment with daily doses of 250, 300 or 400 roentgens with a 0.5 mm. of copper or tin filter, 50 to 60 cm. focal distance and a total cutaneous dose of 2,500 to 3,000 roentgens during four to six weeks on each of two anterior and two posterior fields. Supplementary series were given two to three months later in some cases. In a case of inoperable reticular cell sarcoma a total dose of 5,250 roentgens in two series led rapidly to freedom from symptoms and complete restoration of working capacity. Many cases of sarcoma are often wrongly diagnosed as inoperable cancer on the basis of exploratory laparotomy and thus are not benefited by the radiotherapeutic possibilities. Biopsy should always be done in cases of inoperable tumors. The difference in localization between these and other gastric tumors is of importance in the roentgenologic differential diagnosis. The growth of the tumor in the submucosa and the fact that the mucosa long remains intact give rise to the typical bulging outline of the mucosa and to the early disturbances in peristalsis due to infiltration of the muscularis. The sarcoma frequently has a smooth surface, but occasionally there is a central crater.

Histologic Picture of Breast Cancer After Preoperative Irradiation.—Roentgen therapy of cancer has passed through several stages. The earliest massive single dose was abandoned in favor of fractionated postoperative irradiation, but this in turn has to some extent been superseded by the preoperative fractionated method. Hoffmeyer describes the microscopic appearance of breast cancer in 50 patients who had been treated preoperatively with fractionated doses of from 1,000 to 4,800 roentgens and subsequently were operated on. The patients were observed in Copenhagen hospitals between 1935 and 1940. Palpation revealed that in 40 cases the tumor had diminished in size; in 2 cases it had disappeared entirely. Microscopy revealed that the irradiation had resulted in a diminution of the cancer cell area more or less corresponding to the macroscopically observed recession of the tumor, but in no case was there complete disappearance of the cancer cells. In many cases the latter showed distinct degenerative changes. In 3 cases to such an extent that roentgen sterilization was likely. In most of the cases cancer cells of the pleomorphic type described by Halley and Melnick were found. It seemed as if a total radiation dose of 4,000 roentgens was slightly more effective than a dose of 2,000 roentgens. An observation made by the author himself, coupled with evidence from the literature, causes him to warn against too long postponement of the surgical operation, owing to the risk of fresh proliferation of the cancer cells.

Book Notices

Psychiatry in War. By Emilio Mira, M.D. Cloth. Price, \$2.75. Pp 206, with 6 illustrations. New York: W. W. Norton & Company, Inc., 1943.

This book is well written, brief and practical.

Dr. Mira has collected and analyzed his material carefully and has tested and recast his clinical and academic psychiatry in the light of actual experience of war both at the home front and in some of the bitterest fighting in any war. Thus tested, his formulations are not mere theory but expressions of psychiatrically sound, proved, clinical facts in the Spanish war.

His discussion of fear, anger, morale, management and direction of aggression are all clearly written. His points on recovery and readjustment should be inculcated in all militarized individuals: "Once a man has been enrolled and trained as a soldier, all efforts should be made to keep him in the army in the event that he becomes ill or injured. In other words, even if there are sufficient new recruits, it is always preferable to restore a veteran rather than to replace him by a novice." He discusses civilian morale factors and correctly brings out that civil and military personnel must not only know whom they are fighting but what they are fighting for and must be in the frame of mind to make war, not merely to support it.

All available manpower was employed in the Spanish war. The epileptic were retained and used where they could function adequately. The neurotic were not discharged unless they were so ill as to need commitment to an institution. The greatest of attention was paid to classification for men, assigning and reassigning them till in the optimal job for them and the army.

Some methods of therapy seemed a bit archaic, particularly the counterirritant therapeutic procedures in toxic states and the painful stimulation of the neurotic. However, the conditions under which he worked and the urgency to get men quickly rehabilitated may justify his use of these procedures, though unacceptable to us. The book is written simply and brings into sharp focus the need for proper guiding of attitude in morale of men and officers. It is recommended to all medical officers as a concise presentation of psychiatry in war.

Sheltered Care and Home Services for Public Assistance Recipients, with a Note on Methods of Conducting Studies of Public Assistance Administration. Federal Security Agency, Social Security Board, Public Assistance Report No. 5. Paper. Price, 25 cents. Pp 149. Washington, D. C.: Supt. of Doc., Government Printing Office, 1941.

This study was confined to public assistance agencies in six urban localities in five states: Orleans Parish, La.; Baltimore, Md.; Cook County, Ill.; Jackson County, Mo., and Boston and Worcester, Mass. For the areas covered it is very thorough. It contains valuable information for welfare workers.

The study grew out of the concern of the bureau about the problems of state and local agencies in assisting aged and blind persons to obtain appropriate living arrangements. It was in line with the suggestion of the President's Committee on Economic Security that a federal agency undertake a survey of institutions for the care of the aged "with a view to recommending a constructive program for the improvement of institutional maintenance of the aged."

The report is divided into four principal phases. Under I, on private sheltered care, it is stated that the proportion of the aged in the general population is increasing and the incidence of chronic illness among the aged is high; also that many more recipients are living in sheltered arrangements than are known. The right of the recipient to use his money payment in bargaining for goods and services should be recognized and protected. The public assistance agency should stimulate community planning to establish standards of care and should participate in efforts to maintain these standards. In II, on sheltered care and public institutions, some significant findings are set down. "The time may be at hand when the public home, like other public institutions, should be regarded as an essential and permanent public service. . . . The scope of the study does not permit the forthright conclusion that the federal government should take steps to participate either in a grant-in-aid program to public institutions or in matching of assistance payments to

inmates of public institutions. . . . Within the present legal framework of federal, state and local public assistance agencies, current interpretations of the use of public institutions by recipients of old age assistance and aid to the blind can be liberalized so that any type of public institution, including the public home, can be considered as a resource for temporary shelter and care of recipients." Services in recipients' homes and guardianship of adult recipients are dealt with in III and IV. Guardianship is important because assistance may be denied applicants who are thought to be unable to manage their money payments without such supervision. Provision for defraying the cost of guardianship requires further study.

The appendix includes a note on methods of conducting studies of public assistance administration, twelve pages of tables of doubtful value and seven pages of selected reading references.

Atlas of the Mouth and Adjacent Parts in Health and Disease. Prepared by Maury Massler, D.D.S., M.S., Director of the Child Research Clinic, Assistant Professor of Histology and Lecturer in Stomatology, College of Medicine, and Isaac Schour, D.D.S., Ph.D., D.Sc., Professor of Histology and Head of the Department of Histology, University of Illinois College of Dentistry. Cloth. Price, \$2.50. No pagination, with 150 illustrations by Carl T. Linden. Chicago: Bureau of Public Relations, Council on Dental Health, American Dental Association, [n. d.].

This book, with its fine plates and concise text, is the answer to a very real need in medical literature. Too little is known by the physician of the tooth and mouth in relation to health and disease, and too often the knowledge of the dentist is restricted to the tooth itself. The "Atlas of the Mouth" could be called the missing link in dentomedical relations. The illustrations—some of them in color—are partly original and partly modifications of published material. The text gives full and clear information by a clever use of large and small type. The selection of the material presented is the result of long experience in teaching dental and medical students. Anatomy, embryology, histology and pathology are combined to transmit useful knowledge applicable to the practice of dentist as well as of physician.

The first part of the book deals with the tooth. Its structure and development, including the chronology of tooth formation, are the basis for the discussion and illustration of caries, erosion, fluorosis, enamel hypoplasia and the changes in congenital syphilis. The lesions of the oral mucosa follow, including periodontal diseases and changes of the tongue. In the plates on tongue anatomy and pathology, diagrammatic pictures of the microscopic changes are included as insets to most of the microscopic illustrations, adding much to the understanding of any lesion. The anatomy of the oral glands is illustrated by plates of the tonsils, paranasal sinuses, arteries, veins and nerves of the head, mandibular articulation, muscles of mastication and their applied anatomy with regard to fractures of the mandible, ailments of the throat and many other disturbances.

To predict great success for this book and to recommend it to every physician and dentist is the pleasant duty of the reviewer.

Industrial Ophthalmology. By Hedwig S. Kuhn, M.D. Cloth. Price, \$6.50. Pp. 294, with 114 illustrations. St. Louis: C. V. Mosby Company, 1944.

In the introduction the author makes the statement that "industrial ophthalmology as a special field has not been previously dealt with as a comprehensive treatise," and "many monographs apposite to this field have been published." Both of these statements bear scrutiny. Throughout the long and stilted introduction there are many statements made, based on the author's limited field of industry—without reference to the work of others—which show a peculiarly mixed medical and psychologic approach to the problem of industrial ophthalmology. Industrial medicine has come into its own only in the past ten years, stimulated more recently by the war with the enormous increase in defense plants. Previous to the augmentation of the so-called heavy industries, with which the author is entirely concerned, there existed in this country many and various lighter industries, which also have been increased. Many of the latter have had industrial eye programs for years which are much simpler and more workable than that outlined [sic] by the author. The excellent work accomplished by such industries as

the Pullman Company, Sears, Roebuck and Company and the General Motors Company are given scant attention. The subject of illumination in industry, as it concerns the eyes, is given approximately two pages, while the literature on this subject fills volumes. Chapter iv, on *industrial eye injuries caused by solid bodies*, written by Dr. Albert C. Snell, which contains a treatise concerning sulfonamide drugs in ocular infections, is excellent. There are many illustrations showing the various jobs and machinery used in the heavy industries. The average industrial ophthalmologist and certainly the industrial physician will find little of use, except for the chapter by Dr. Snell, in this very unpractical monograph.

The History of Miners' Diseases: A Medical and Social Interpretation. By George Rosen, M.D. With an Introduction by Henry E. Sigerist, M.D. Cloth. Price, \$8.50. Pp. 490, with 19 illustrations. New York: Schuman's, 1943.

The publication of a history of the development of industrial medicine in such an essential industry as mining is appropriate at this time, when the practice of this branch of medicine has become such a vital part of national defense measures.

By correlating the development of miners' diseases through the ages with the advances in the basic medical sciences and with the varying social and economic conditions that have contributed to the rise of occupational diseases in the industry, Dr. Rosen has provided an essential and interesting background for the medical discussion.

Although, according to the author, ancient medical writers do not mention the health hazards connected with the occupation of mining, glimpses given by other writers of the social and economic conditions under which the miners lived and worked indicate that these hazards were appalling. These conditions, combined with the physical deprivations and tortures to which the ancient miners were subjected, must have resulted in the rapid development of disease and premature death. In fact, mining conditions were still so bad at the time of Ramazzini (about the beginning of the eighteenth century) that he wrote "Whatever metal they mine they invite dreadful diseases which too often mock at every remedy, even supposing that some suitable remedy is duly prescribed; though it would seem to be a question whether it can be considered a pious duty to administer medical aid to men of that class and thus prolong their lives to the bitter end." The fact that mining in antiquity was done almost exclusively by slaves may account for the almost complete disregard of the miner and his diseases by ancient medical authors. Only the Corpus Hippocraticum and Galen refer to mine workers. All other references to the diseases of miners are found in the nonmedical writers of the Roman period.

It is significant that the early medical writers who discussed miners' diseases—Agricola, Paracelsus, Pansa, Stockhausen and others—had actual mining experience or had observed personally the miners among whom they lived and practiced medicine.

The discussion of the evolution of mining methods and miners' organizations from prehistoric times to the end of the nineteenth century should appeal especially to those connected with the mining industry. The general reader who likes biography and history and is interested in the progress of civilization will find the book instructive and stimulating. For those concerned with the prevention of occupational diseases—doctors, engineers and chemists—it will provide a historical background and much useful information for their specialized activities.

Office Endocrinology. By Robert B. Greenblatt, B.A., M.D., C.M., Professor of Experimental Medicine, University of Georgia, School of Medicine, Augusta. With a foreword by G. Lombard Kelly, M.D., Dean, University of Georgia School of Medicine. Second edition. Cloth. Price, \$4. Pp. 243, with illustrations. Springfield, Ill., & Baltimore: Charles C Thomas, 1941.

This book is not intended as a textbook but represents a series of lectures presented to postgraduate classes in office endocrinology. The material is offered in abbreviated form and contains a minimum of theoretical and experimental data. If used with the understanding that textbooks should be used for reference, the manual will be well received and found useful by many in general practice. Each chapter offers a bibliography that will do much, if used, to offset the brevity of the book. The index is complete.

The Problem of Changing Food Habits. Report of the Committee on Food Habits 1941-1943. Carl E. Guthe, Chairman, Margaret Mead, Executive Secretary. Bulletin of the National Research Council, Number 108, October 1943. Paper. Pp. 177, with 3 illustrations. Washington, D. C.: The National Research Council, National Academy of Sciences, Inc. d.j.

This booklet outlines the problems confronting this country in the matter of making the most of our food supplies in the face of impending war. As part of the attack on these tremendous problems, the Committee on Food Habits of the National Research Council was organized to work with governmental agencies to determine wherein lay the weaknesses of the national dietary and how they might be corrected. Cultural as well as scientific problems were involved. Studies were made first of all to determine the food pattern of population groups with different racial backgrounds. Then the types of meals served to family groups and individuals were considered. It was demonstrated that a dietary change could be effected more readily when a group decided to do so rather than when it was asked to change. More desirable results are usually attained by contact with preexisting organizations than through new alignments. In general it was found that changes in food habits can be brought about in a relatively short time. The eating habits of such groups as shift workers, governmental office workers and racial groups were determined. Attitudes of the people of this country toward food rationing were sounded out with a series of carefully chosen questions, but essentially none of the information gathered in this study is found in the report. The group comprising the committee represents widely varied interests and therefore brings many points of view to the discussion of the problems. The results of the broad scope of these field studies and the numerous planned discussions should prove of real value in devising plans for the most effective utilization of this country's food supplies.

Die epidemische Kinderlähmung (Poliomyelitis). Von Prof. Dr. med. E. Glanzmann, Professor für Kinderheilkunde an der Universität Bern. Akademischer Vortrag gehalten am 26. Februar 1943. Paper. Price, 6.80 Swiss francs. Pp. 80, with 22 illustrations. Bern: Medizinischer Verlag Hans Huber, 1943.

This is an academic lecture at the University of Bern, Feb. 26, 1943, and now somewhat enlarged. The epidemiology, the etiology and genesis, the clinical features, the prevention and the treatment of infantile paralysis are discussed interestingly in the light of observations and experimental investigations. Particularly interesting are the sections dealing with the evolution of infantile paralysis from sporadic cases into widely distributed epidemics and with the origin and spread of epidemic outbreaks. The epidemics in Switzerland are shown on colored maps. The lecture presents well the present knowledge and understanding of infantile paralysis.

A Textbook of Materia Medica, Pharmacology and Therapeutics. By Harold N. Wright, M.S., Ph.D., Associate Professor of Pharmacology, University of Minnesota, Minneapolis, and Mildred Montag, B.S., M.A., Director, Adelphi College School of Nursing, Garden City, N. Y. Third edition. Cloth. Price, \$3. Pp. 706, with 93 illustrations. Philadelphia & London: W. B. Saunders Company, 1944.

This book is intended for nurses but is better than many others offered for this purpose. The subject matter is presented in interesting style and is sufficiently complete to provide almost all that is essential for nurses studying the use of drugs. In fact, it is also a practical reference source for graduate nurses. The drugs are grouped according to their effects on the body tissues. Each chapter contains at the end a list of questions for practical exercises. The index is complete, as is the glossary of definitions.

Vascular Responses in the Extremities of Man in Health and Disease. By David I. Abramson, M.D., F.A.C.P. Cloth. Price, \$7. Pp. 412, with 59 illustrations. Chicago: University of Chicago Press, 1941.

The book is an excellent review of the subject, with particular reference to the underlying physiologic disturbances and the technic of arriving at a diagnosis. The work is written entirely from the standpoint of a physician without apparently very much personal experience from the evaluation of surgical procedures. A valuable part of the monograph is the extensive bibliography which follows each chapter. The book is generally well written and is recommended to all students of vascular diseases.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

NAIL POLISH DERMATITIS AND SENSITIZATION TO SULFONAMIDES—HAIR LACQUER DERMATITIS

To the Editor:—What is the present status of dermatitis from nail polish and from hair lacquer?
M.D., Illinois.

ANSWER.—Numerous examples of nail polish dermatitis are still seen. In a paper by Keil and Van Dyck (*Arch. Dermat. & Syph.*, to be published) there is recorded hypersensitiveness to a particular resin, namely toluene sulfonamide formaldehyde resin, in 25 cases of nail polish dermatitis. This is the chief cause of nail polish dermatitis as seen today. There are, however, exceptional cases in which this substance can be ruled out definitely as the cause. Toluene sulfonamide formaldehyde resin is used in many other types of lacquer. What is especially interesting is that 7 out of 16 persons tested with toluene sulfonamide (probably a mixture of the ortho and para varieties) were hypersensitive to that substance. The concentration used in testing by the patch technic was only 3 per cent in acetone. This substance is similar to sulfanilamide and differs only in the presence of a methyl group instead of the amino group in the para position. In a letter published in *THE JOURNAL*, Nov. 27, 1943, page 857, Keil suggested that this similarity might lead to a group reaction to sulfanilamide. In the paper to appear in the *Archives of Dermatology* it is recorded that 1 out of 4 cases showed this group hypersensitiveness, and this case is especially interesting in that sulfanilamide had never been used before, either internally or externally. There is suggestive evidence that sensitization of this type carries with it the possibility of being group sensitized to the sulfonamides, but how frequently this occurs remains to be determined. Examples of this type of dermatitis are still being seen with considerable frequency.

The problem of hair lacquer dermatitis seems to be separate and distinct from that of nail polish. Cases of such dermatitis are, however, still too frequent.

EXCESSIVE MENSTRUAL FLOW PROBABLY FROM HEMORRHAGIC DISORDER

To the Editor:—A woman aged 32 complains of intermittent fever ranging as high as 102 F. oral at irregular intervals; excessive bleeding from a dental extraction, cuts, and so on since childhood; profuse menstruation, often requiring three to four dozen pads with prolonged periods, usually two to three weeks apart; easy bruising; cyanosis of the lips almost constantly—cyanosis involving the upper extremities at times. She has 2 children. Physical examination did not reveal significant factors except that she was pale and underweight and that the lips were cyanotic. There was no evidence of fibroids of the uterus or of cancer. Laboratory examination revealed a hemoglobin of 12 Gm., and this was confirmed by repeated examinations. The white blood cell count was 10,900 with a normal differential count. There were no abnormalities in the red cells. Bleeding time was 4.5 minutes and clotting time 9 minutes. There was poor clot retraction. The sedimentation rate was 1.2 mm. per minute. Hematocrit was 35 per cent. Plasma ascorbic acid was 0.4 mg. per hundred cubic centimeters. The basal metabolic rate was 1 plus. The Kahn reaction was negative. Agglutination tests for typhoid, paratyphoid and undulant fever were all negative. X-ray examination of the chest showed calcified Ghon tubercle at the right base and right hilar calcified adenopathy. There was no evidence of active pulmonary disease. The previous history indicates that the patient has passed many urinary calculi. X-ray examination of the kidneys (intravenous pyelogram) showed no abnormalities. The patient had an abdominal operation four years ago, at which time a uterine suspension was done. The tubes were kinked by adhesions, but other abnormalities were not noted. She has had attacks of sinusitis as well as middle ear infection. In an effort to check the severe menorrhagia she has had vitamin K, ascorbic acid, calcium and bile salts as well as roentgen treatment of the ovaries. What further investigations would be helpful? What therapeutic measures could be used to regulate the bleeding and clotting time. Is one justified in doing a hysterectomy in order to stop the bleeding or would severe hemorrhage occur elsewhere?
G. W. Brown, M.D., Buchanan, Mich.

ANSWER.—From the history it appears that the patient has a hemorrhagic disorder which is responsible for the excessive menstrual flow. The bleeding time is slightly prolonged, whereas the coagulation time is within normal limits (assuming that it was performed on venous blood by the Lee and White method). A platelet count should be made, as a reduction in platelets is frequently associated with a poor clot retraction. To complete the study of the hemorrhagic condition, determinations of the prothrombin and fibrinogen in the blood should be

made and the capillary resistance measured by a Rumpel-Leede test.

In ruling out undulant fever, the intradermal reaction would be of more help than the agglutination tests. One wonders whether the fever, cyanosis and hemorrhagic tendency are in some way related. A drug might produce both cyanosis and purpura.

It is possible that the patient has a hereditary hemorrhagic diathesis known as pseudohemophilia or thrombasthenia. If so, the only therapeutic measure of any value is blood transfusion, the effect of which is temporary. The production of an artificial menopause by further irradiation of the ovaries would seem to be the most conservative method of approach. Injections of testosterone have also been used to stop menstruation. Hysterectomy should be performed only as a last resort.

IRRITATION OF EYES FROM LOCAL INSTILLATIONS

To the Editor:—Can you tell me whether there is danger of chemical irritation to the eye in successive changes of treatment of acute catarrhal conjunctivitis by different clinic doctors on successive days with such instillations as mild protein silver, sulfathiazole ophthalmic ointment 5 per cent, yellow mercuric oxide, mercury bichloride ointment 1:3,000, metaphen, mercurochrome 1 per cent, hexylresorcinol, acriflavine solution 1:2,500, zinc sulfate 0.25 per cent solution and copper sulfate 1:1,000 ointment? Actually I have seen only changes from mild protein silver to sulfathiazole with yellow mercuric oxide to the lids, but with all drugs available is there not needed a special warning of danger from special chemical combinations?
M.D., New York.

ANSWER.—Presumably the writer of the query has in mind particularly (a) chemical irritation due to drug incompatibility or (b) changes in the tissues following the use of one drug which make that tissue particularly sensitive to another drug.

The chemical treatment of inflamed tissue is used (1) to reduce the viability of the infecting organisms (bacteriologic study should always be made so that specific treatment can be applied whenever possible, e. g. Klebs-Loeffler bacilli, gonococci, Morax-Axenfeld bacilli, (2) to increase the general immune and antibody content within and around the living cells or (3) to restore the tissues to normal at the earliest possible date.

How do chemicals act? First of all there is the specific action, which evidently is not in question. The various silver solutions are typical of those with nonspecific action. 1. Silver precipitates the salt of the tears and mucus; and the constant movement of the lids on the eyeball rolls this precipitate into stringy and fibrinous threads and moves them toward the inner canthus. 2. Depending on the strength of solution and the vigor of application, silver penetrates the superficial dead cells and may even kill some of the living cells. These then are thrown off and there follows active proliferation of the deeper lying cells. This activity calls for more nourishment; this means hyperemia and more edema; i. e. there is an increase in the amount of blood stream immune bodies. Within a few (two to twenty-four) hours, if the eyes are not kept closed (longer if they are), all of the seriously affected cells are thrown off and replaced by younger cells. One can follow this phenomenon by using the slit lamp and corneal microscope on corneal epithelium treated with 1 to 2 per cent silver nitrate. The new cells (a) are younger, more active and vigorous, (b) have fewer organisms in and among them and (c) have almost no precipitated silver. Therefore, the use, twenty-four hours later, of another element would present no problem of drug incompatibility.

Mild protein silver is much milder than silver nitrate and would present no problem of drug incompatibility. The other drugs similarly are less irritating. They were used originally, in part at least, as specifics. The sulfur drugs and zinc are still used specifically by many physicians. They all act for only a short time, as they are diluted, neutralized and thrown off by the tears and mucus which are present in great quantity in acute catarrhal conjunctivitis and which the treatment itself tends to augment. It must be concluded, therefore, that medication introduced into the conjunctival sac is not present in appreciable quantity a few hours later in cases of acute catarrhal conjunctivitis, so that drug incompatibility under the circumstances described is impossible.

Allergy and drug sensitivity exist or can be produced in the conjunctiva as well as in any other tissue. There is a time element here as elsewhere in the formation of such states; usually a week or more must elapse between the original sensitizing dose and the one producing the allergic reaction. Atropine conjunctivitis and mercurial conjunctivitis following surgical operation are well known examples. A number of persons react unfavorably to sulfathiazole, especially in 5 per cent solution or ointment. The reactions are specific; e. g., a mercurial does not sensitize a tissue to hexylresorcinol.

Another angle which must be considered as often complicating the picture is allergy from facial creams, eyelash prepara-

tions of many kinds, nail polish and even foods. Also regional skin disorders such as molluscum contagiosum and seborrheic dermatitis are not infrequently encountered. Finally overtreatment must be avoided.

The answer to the question may thus be summarized: "Probably not; the fact that several physicians treat such a case in such diverse ways means that insufficient attention is paid to etiology and the study of inflammatory reactions."

FLUORINE IN WATER SUPPLIES AND DENTAL CARIES

To the Editor:—I have been disturbed about the current practice of advising fluorine filtered or distilled water for children in this area who are under 8 years of age. This has been done as a safeguard against "mottled enamel" in the second teeth, which is endemic here. According to past experimental and clinical observations, notably those of M. V. Smith as published in the University of Arizona Technical Bulletin in 1931, endemic dental fluorosis will occur in a certain percentage of children when the fluorine of the drinking water is 1 part per million. I am cognizant of the recent reports concerning dental caries being lessened by the presence of fluorine in the drinking water but have not seen any reports regarding the relative importance of the two evils or any opinion as to the overlapping of these two defects. What I am disturbed about is a statement I read in *Time*, April 24, to the effect that the health departments of the state of New York and the province of Ontario are adding fluorine to the drinking water of two cities to bring the fluorine content to 1 part per million as a test to prevent dental caries. Are the public health departments ignoring the possibility of dental fluorosis occurring or is there new work to show that dental fluorosis does not occur when the fluorine content of the water is 1 part per million?

D. C. Badger, M.D., Hobbs, N. M.

To the Editor:—I am interested in knowing the medical opinion of the use of fluorine in dental caries. If its use is advisable I should also like to know how to prescribe it.

J. J. McCarty, M.D., Chicago.

ANSWER.—The questions raised in these letters have been thoroughly investigated by Dean and his co-workers, who carried on an extensive epidemiologic survey on the relation of fluorine content in the water supplies to the incidence of mottled enamel and dental caries. Concentrations of fluorine of 1 part per million were found to be ideal in that this proportion prevents dental caries without producing dental fluorosis. In all communities where the water supply contained this concentration of fluorine the dental survey showed low dental caries rates and a low incidence of a mild mottled enamel. "Amounts of fluorine not exceeding 1 part per million of water are not considered of public health significance" (Dean).

The communities in New York which are undertaking the long range studies referred to are Newburgh and Kingston (New York news, *THE JOURNAL*, May 6, p. 73).

References:

Dean and others: *Pub. Health Rep.* 52: 1249 (Sept. 10) 1937; 53: 1443 (Aug. 19) 1938; 54: 862 (May 26) 1939; 56: 761 (April 11) 1941.

Fluoride and Dental Caries, Current Comment, *THE JOURNAL*, Jan. 8, 1944, p. 98.

CORONARY INSUFFICIENCY AND DENTAL PAIN

To the Editor:—Periodically I encounter patients who complain of "pain in the teeth." These patients always show coronary insufficiency. They have as a rule the typical substernal, epigastric and arm pain and radiations. I realize that there are frequent references in the literature to pain in the jaws in coronary occlusion or thrombosis, but I cannot find any reference in which the complaint of "pain in the teeth" is encountered. The patients that I have seen with this complaint contend that they have a severe, painful sensation in the central six to eight teeth, both upper and lower. I should appreciate some comment on this finding.

M.D., Illinois

ANSWER.—It is distinctly unusual in the experience of one who sees a great deal of coronary insufficiency to find that angina pectoris arising therefrom is referred to the teeth. It is relatively uncommon for heart pain of anginal or other nature to be referred even to the jaws. There are striking exceptions, but they are decidedly uncommon. It would seem probable that any frequent finding of pain in the teeth in patients who have coronary insufficiency is to be attributed primarily not to heart disease but to other trouble of local dental origin or is due to neuralgia.

DIETHYLSTILBESTROL MALE HYPERSEXUALITY

To the Editor:—Has the drug diethylstilbestrol been used in place of a sedative for male patients who show hypersexual activities while in an institution? I have not been able to find any articles in the literature.

George L. Kennedy, M.D., Faribault, Minn.

ANSWER.—A report on the use of diethylstilbestrol in a man with hypersexual activity while in a hospital will be found under the title of "Stilbestrol Induced Gynecomastia in the Male" in *THE JOURNAL*, Dec. 28, 1940, page 2263, by Dr. C. W. Dunn. There have been no extensive reports of such treatment in the literature. The implications in the more recent attempts to use diethylstilbestrol for the alleviation of prostatic carcinoma and metastases would give further credibility to this type of therapy.

SEVERE HAY FEVER WITH EXPECTED PARTURITION AT HAY FEVER SEASON

To the Editor:—A woman aged 26 is pregnant for the first time and expects her baby around October 1. For the last ten years she has suffered from fall hay fever from September 1 to October 1. Perennial injections with a special mixture containing ragweed and house dust gave no relief in 1942 or 1943. The father also has fall hay fever but is more violently allergic to ragweed than is the mother. Two siblings of the father also have ragweed sensitivity, as manifested by fall hay fever. The patient's pregnancy to date has been completely uneventful. Blood pressure is 114/76; urine is normal. Pelvic measurements reveal an ample gynecoid pelvis. Hemoglobin is 90 per cent. What treatment if any is indicated for her hay fever this year other than purely symptomatic measures? Would desensitization tend to affect the fetus adversely? Is induction of labor at the start of the ninth month (September 1) advisable to prevent parturition during the hay fever season? Would such induction alter the chance of transmission of allergy?

Milton L. Bankoff, M.D., Michigan City, Ind.

ANSWER.—While pollen injections do not affect the fetus adversely, it would seem advisable in a case like this to discontinue attempts at hyposensitization during pregnancy. The reason for discontinuing such treatment is that perennial hyposensitization has failed to give relief.

It is true that some workers in allergy report better results with preseasonal than with perennial treatment in some cases. However, since the first year of treatment in this case may be considered as typical preseasonal treatment and since this failed to give any relief, it would seem advisable not to continue with such treatment. Relief can be given by symptomatic therapy.

There is no reason for preventing parturition during the hay fever season by earlier induction of labor. It would in no way alter the chances of transmission of allergic tendencies, since such transmission is based on hereditary factors.

EXAMINATION OF URINE

To the Editor:—What advantages are there in examining a fresh specimen of urine with and without ordinary urinary preservatives? What is the number of hours that a specimen may be considered "fresh" in order to retain the advantages mentioned? How many of the findings in a specimen of urine may be missed because the examination is made when the specimen can no longer be called a fresh specimen?

M.D., Pennsylvania

ANSWER.—For accurate examination urine should be examined fresh or else after preservation by cold or chemicals. At room temperature or higher urine begins to decompose rapidly, and after a few hours the various findings may change. Sugar may disappear rapidly. The reaction becomes increasing in acidity or alkalinity or perhaps changes from one to the other. Urea may decrease in amount. Volatile substances are lost. Casts may dissolve in a few hours. Gershenfeld (*Urine and Urinalysis*, Philadelphia, Lea & Febiger, 1943) says that specimens which are not properly preserved should be examined microscopically within six hours. At times substances usually not present are formed. Naturally since the decomposition is due to bacteria there is a large increase in bacteria; so any bacteriologic examination must be made on fresh or refrigerated urine. The period that urine may be kept without preservatives depends on the weather, but under ordinary conditions six hours is the outside limit and two hours is the preferable limit. Twenty-four hour specimens of urine that are sent through the mail should contain preservatives.

DERMATITIS FROM LOCAL ANESTHETICS

To the Editor:—I am allergic to butyn and to procaine hydrochloride, getting a terrific contact dermatitis. Cocaine does not affect me, but in most cases I prefer not to use cocaine. Do you know of any local anesthetic besides cocaine which has a different chemical formula from that of procaine or of butyn, which I could use with impunity?

J. L. Dach, M.D., Hettlinger, N. D.

ANSWER.—Metycaine hydrochloride (benzoyl-γ-[2-methyl-piperidino]-propanol hydrochloride) has a structural chemical formula that differs greatly from that of butyn and procaine and also from cocaine. It is a surface anesthetic and may be used for infiltration, block anesthesia and spinal anesthesia. It would be worth a trial in the case cited, since many dentists who have been troubled with procaine dermatitis have found that they can use metycaine satisfactorily. Reference: Lundy, J. S.: *Clinical Anesthesia*, Philadelphia, W. B. Saunders Company, 1942, page 30.

COMPOSITION OF DENTAL PLATE

To the Editor:—A patient requests information on the use and advisability of a stainless steel plate for teeth. Is it tasteless, and will the secretions of the mouth affect it? This is with regard to an upper plate.

John Conley, M.D., Fort Wayne, Ind.

ANSWER.—The patient probably has in mind the chrome-nickel alloy plates. These are tasteless and are not affected by the secretions of the mouth.

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THE EFFECT OF SMOKING CIGARETS

AND OF INTRAVENOUS ADMINISTRATION OF NICOTINE
ON THE ELECTROCARDIOGRAM, BASAL METABOLIC
RATE, CUTANEOUS TEMPERATURE, BLOOD PRESSURE
AND PULSE RATE OF NORMAL PERSONS

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The effect of the smoking of tobacco on the circulation of man has been the subject of many excellent papers. Comprehensive investigations of the pharmacologic and physiologic action of tobacco smoke and nicotine have been reported elsewhere and are not within the scope of this paper.

The vasoconstrictor action of smoking tobacco was first demonstrated by Bruce and his associates¹ in 1909 by means of the plethysmograph. Hesse² in 1907 and Lee³ in 1908 had observed that smoking produced an elevation of the blood pressure and an increase of the pulse rate. Since that time it has been further recognized that the smoking of cigarettes produces vasoconstriction characterized by a decrease of cutaneous temperatures of the extremities or plethysmographically by a decrease of the velocity of blood flow together with an elevation of blood pressure and pulse rate. Renewed interest in the effects of the smoking of cigarettes arose as a result of its alleged etiologic relation to peripheral vascular disease.

Maddock and Collier⁴ and Maddock, Malcolm and Collier⁵ in a series of papers demonstrated that smoking produced vasoconstriction of the peripheral blood vessels of the extremities and elevation of the blood pressure and pulse rate not only of patients suffering from peripheral vascular disease but also of normal subjects. Further, they demonstrated that intravenous injections of nicotine produced similar changes in nor-

mal persons. Barker⁶ in 1933 observed a significant vasoconstriction in the digits of normal subjects after they had smoked cigarettes. He reported that the effect was apparently due to the absorbed portion of the tobacco smoke and not to the smoke from the cigarette paper. In the same year Wright⁷ and in 1934 Wright and Moffat⁸ noted similar changes in cutaneous temperatures of the extremities and vasoconstriction of the capillaries of the nailfolds with smoking of both standard and denicotinized cigarettes. "An ashless filter paper cigarette produced no appreciable effects on the surface temperature." In contrast Mulinos and Shulman,⁹ who used the capillary microscope, the plethysmograph and the cutaneous temperature of fingers to determine the effect of smoking on the peripheral circulation, concluded that the greater part of the observed decrease of peripheral blood flow could be accounted for by deep breathing. Smithwick¹⁰ likewise reported a decrease of blood flow through a finger after a deep breath, immersion of the contralateral hand in cold water, a loud noise or even an unpleasant thought.

Weatherby¹¹ also found that such stimuli may cause changes of cutaneous temperature comparable to those produced by smoking. However, he found that vasoconstriction took place after the smoking of standard cigarettes but that when nicotine was removed from standard cigarettes and the denicotinized cigarettes were smoked the vasoconstriction was abolished almost completely. Restoration of the original nicotine content to such cigarettes restored the original effects, indicating that nicotine is the most important agent which contributes to the circulatory and cutaneous changes. Weatherby also noted that when his subjects were ambulatory vasoconstriction of the peripheral blood vessels did not occur during the smoking of standard cigarettes.

In contrast Evans and Stewart¹² found a similar decrease of peripheral blood flow with reduction of cutaneous temperatures of the extremities as a result of the smoking of standard cigarettes, denicotinized cigarettes or cigarettes not containing any nicotine (corn silk). They attributed these changes to sympathetic stimulation brought about by the irritating effect of smoke on the respiratory tract and not due to the nicotine content of the cigarette.

From the Section on Clinical Physiology, Mayo Clinic (Dr. Roth) and the Division of Physics and Biophysical Research, Mayo Clinic and Mayo Foundation (Dr. Sheard).

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Simultaneously, Johnston¹³ in England added to the nicotine hypothesis by assuming that the smoking of tobacco is essentially a means of administering nicotine. He gave nicotine both hypodermically and intravenously and obtained a vasoconstrictor effect similar to that of smoking tobacco.

Because of the apparent lack of agreement among the various investigators and the importance of this subject to the clinician, further study of the subject seemed desirable.

PROCEDURE

Sixty-six observations were made on 4 male physicians and 2 female technicians whose ages ranged from 22 to 41 years. All were habitual smokers and inhaled during smoking. As they were accustomed to the procedures in the psychrometric room, psychic stimulation was at a minimum.

Standard cigarettes of different brands bought on the open market were used. As a control, cigarettes made of corn silk were smoked. Also comparative studies with standard cigarette paper and French ashless cigarette paper were made with equal weights of standard cigarette tobacco and corn silk to investigate the possibility of an irritating factor in the preparation or bleaching process of the paper. Also a popular British cigarette filter holder was used with standard cigarettes.

Data were obtained in a constant temperature room with an environmental temperature of 78 F. and a relative humidity of 40 per cent. The subjects were fasted for fifteen hours previous to the tests, and during the test they wore lightweight short pajamas and except when otherwise noted were in the supine position on comfortable beds.

The temperatures¹⁴ of the plantar surface of the first and third toes of both feet and the volar side of the distal phalanges of the first and third fingers of both hands were measured by means of thermocouples¹⁵ of copper and constantan. When fairly constant readings of the cutaneous temperatures had been obtained and determinations of basal blood pressure and pulse rate had been made, smoking was begun. Two cigarettes were smoked in succession until two thirds of each had been smoked. Simultaneous determinations of blood pressure, pulse rate and cutaneous temperature were obtained at one minute intervals during the smoking period, which generally lasted about twelve to sixteen minutes. The subjects inhaled the tobacco smoke with their accustomed depth and frequency. Further, the observations were continued for thirty minutes to one hour after smoking. An attempt was made to avoid all unnecessary noise and other stimuli which might produce vasoconstriction during this period.

Observations were divided into six groups:

GROUP I. *Cutaneous temperatures while the subjects were resting in the supine position wearing lightweight short pajamas.* The cutaneous temperatures of the extremities were observed before and after the smoking of two cigarettes of the four types of cigarette previously mentioned. The British filter holder also was used. As a further control, puffing an unlighted cigarette was

tried on several occasions to determine the effect on the cutaneous temperatures of the extremities. In many instances the oral temperature was noted before and after smoking, and in several instances rectal temperatures were recorded simultaneously with those of the fingers and toes. On one occasion twenty thermocouples were used and peripheral blood flow was calculated according to the method of Hardy and Soderstrom.¹⁶

GROUP II. *Cutaneous temperatures of the extremities of fully clothed subjects while sitting or during slow walking.* Determinations of the cutaneous temperatures were made by placing thermocouples inside the socks and shoes. The subjects sat in a comfortable chair with a back rest for a thirty minute control period. Two standard cigarettes were then smoked. For slow walking a similar control period was employed while the subject averaged four short steps backward and forward for each three seconds. Again two standard cigarettes were smoked and the usual observations made.

GROUP III. *Basal metabolism.* The basal metabolic rate was first determined, then two standard cigarettes were smoked and the determination of the basal metabolic rate was repeated immediately after the smoking had been finished. Similar observations with corn silk were made for comparison. Studies of the cutaneous temperatures of the extremities were carried out in most instances.

GROUP IV. *Electrocardiography.* Electrocardiographic tracings were made before and after the smoking of two standard cigarettes and at another time after the smoking of two corn silk cigarettes for control.

GROUP V. *Intravenous administration of nicotine.* After basal determinations of the cutaneous temperatures of the extremities had been noted, an infusion of isotonic solution of sodium chloride was started. When basal readings had been observed under these circumstances, without the subject being aware of the change, 2 mg. of nicotine was given through the same apparatus. Electrocardiographic tracings were obtained at several intervals before, during and after the infusion of isotonic solution of sodium chloride and nicotine. The determinations of cutaneous temperature were discontinued during the taking of the electrocardiograms except in 1 instance but were resumed after the tracings had been made.

GROUP VI. *Blood pressure including the cold pressor test and pulse rates.* Determinations of blood pressure and pulse rates were made simultaneously with the observations of cutaneous temperature in all the foregoing groups. In addition a cold pressor test was done on each subject. The method of Hines and Brown¹⁷ was employed. After basal blood pressures had been obtained one hand was immersed well above the wrist in water at 4 C. for one minute and the response of the blood pressure was noted during this period. This was done to determine whether any parallelism existed between the reactivity of the blood pressure to the cold pressor test and hypersensitiveness to tobacco.

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RESULTS

GROUP I. *Cutaneous temperatures while the subjects were resting in the supine position wearing lightweight short pajamas.* When an unlighted cigaret was puffed for the period it usually took to smoke two standard cigarets there was little or no change of the cutaneous temperature of the extremities. The average decrease of cutaneous temperature after the smoking of two standard cigarets was 1.8 degrees C. for the toes, with a range from 0.7 to 4.0 degrees C., while for the fingers it was 3.2 degrees C. with a range from 1.2 to 6.5

decrease which took place in any digit was 2 degrees C. (table 2). Figure 1 demonstrates graphically the comparison of puffing on an unlighted cigaret, smoking two corn silk cigarets and smoking two standard cigarets.

The effect of smoking two corn silk cigarets and two standard cigarets on the peripheral blood as determined by the method of Hardy and Soderstrom¹⁰ showed little change with the corn silk cigarets and the usual change with two standard cigarets. When French ashless cigaret papers were used with the amount of tobacco

TABLE 1.—*Effect of Smoking Two Standard Cigarets on the Cutaneous Temperatures of the Extremities, Blood Pressure and Pulse Rate*

Subject	Average Cutaneous Temperatures, Degrees C								Blood Pressure, Mm. of Mercury						Pulse Rate, Beats per Minute			Cold Pressor, Mm. of Mercury
	Toes			Fingers			Maximal Decrease in a Single Digit		Basal		During Smoking		Increase					
	Before	During Smoking	Average Decrease	Before	During Smoking	Average Decrease			Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic				
1	26.0	24.9	1.1	34.8	28.3	6.5	1.7	7.7	98	60	108	75	10	15	48	84	36	95/70-110/80
2	27.1	25.0	2.1	29.6	27.1	2.5	2.2	2.8	102	70	125	84	23	14	76	96	20	100/60-120/80
3	25.6	24.9	0.7	35.1	30.3	4.8	1.2	5.2	105	72	120	78	15	6	72	124	52	115/75-120/82
4	34.4	31.1	3.3	34.5	30.3	4.2	4.1	5.2	95	65	130	85	35	20	52	84	32	90/70-140/100
5	27.4	26.7	0.7	34.5	31.6	2.9	1.3	4.0	105	70	115	80	10	10	76	110	34	105/70-130/100
5	26.7	27.6	1.1	33.8	31.9	1.9	1.4	2.0	90	70	114	80	24	10	72	112	40	
5	28.6	26.7	1.9	33.4	29.7	3.7	2.2	3.7	100	70	112	85	12	15	62	120	38	
5	30.0	28.7	1.3	34.5	32.7	1.8	2.1	2.5	100	70	118	84	18	14	80	120	40	
5	26.9	25.9	1.0	33.5	30.4	3.1	1.1	4.0	90	70	110	80	20	10	72	100	28	
5	32.6	29.1	3.5	34.8	32.4	2.4	4.1	2.5	98	68	112	85	14	17	76	108	32	
5	29.4	27.3	2.1	33.1	29.8	3.3	2.6	4.3	95	70	112	82	17	12	72	104	32	
5	28.2	27.3	0.9	33.9	31.5	2.4	1.7	3.5	95	70	114	85	19	15	72	108	36	
5	26.6	25.7	0.9	31.4	26.0	5.4	1.1	5.6	90	60	115	80	35	20	60	100	40	
6	33.7	29.7	4.0	34.1	32.9	1.2	4.3	2.6	120	85	148	98	28	13	60	104	44	120/85-150/110
Average	29.0	27.2	1.8	33.6	30.4	3.2	2.2	4.0	99	69	118	83	19	14	69	105	36	

TABLE 2.—*Effect of Smoking Two Corn Silk Cigarets on the Cutaneous Temperatures of the Extremities, Blood Pressure and Pulse Rate*

Subject	Average Cutaneous Temperatures, Degrees C.								Blood Pressure, Mm. of Mercury						Pulse Rate, Beats per Minute		
	Toes			Fingers			Maximal Change in a Single Digit		Basal		During Smoking		Increase		During Smoking		
	Basal	After Smoking	Change	Basal	After Smoking	Change			Sys- tolic	Dias- tolic	Sys- tolic	Dias- tolic	Sys- tolic	Dias- tolic			
															Toes	Fingers	Basal	Smok- ing	In- crease
1	25.0	25.1	+0.1	31.1	30.1	-1.0	+0.2	-1.2	105	60	110	70	5	10	72	76	4
2	26.5	25.1	-1.4	29.5	28.4	-1.1	-1.5	-2.0	105	60	105	65	0	5	60	64	4
3	28.3	27.6	-0.7	34.5	34.1	-0.4	-1.6	-0.7	100	60	100	60	0	0	68	72	4
5	29.0	29.7	+0.7	33.4	33.7	+0.3	+1.1	+0.5	95	70	100	70	5	0	72	80	8
5	26.7	26.8	+0.1	32.9	32.3	-0.6	+0.1	-0.7	90	60	95	65	5	5	76	76	0
Average	27.1	26.9	-0.2	32.3	31.7	-0.6	-0.3	-0.8	99	62	102	66	3	4	70	74	4

degrees C. The maximal decrease for any one toe was 4.3 degrees C. and 7.7 degrees C. for a finger (table 1).

After the smoking of two standard cigarets the maximal rise of oral temperature was 0.6 degree C. Also the rectal temperatures were little changed in two observations on 1 subject. The actual rectal temperature ranged from 37.2 C. (98.9 F.) to 37.4 C. (99.3 F.) in 1 instance and changed from 37.4 C. (99.3 F.) to 37.8 C. (100 F.) at another observation. These changes could not be considered significant in the procedure and type of investigation with which we are concerned.

When two corn silk cigarets were smoked by each of 4 of the subjects on five occasions there was an increase of 0.1 to 0.7 degree C. in the toes in three observations and a decrease of 0.7 to 1.4 degrees C. in two observations. In the fingers there was a decrease of 0.4 to 1.1 degrees C. except in 1 instance, in which there was an increase of 0.3 degree C. The greatest

in a standard cigaret or with corn silk, the effect on the cutaneous temperatures corresponded to the effect produced by the respective cigarets alone. The British filter holder together with standard cigarets produced the same decrease of cutaneous temperature of the extremities as the standard cigarets did alone.

GROUP II. *Cutaneous temperatures of the extremities of fully clothed subjects while sitting or during slow walking.* Figure 2 demonstrates the effect of the smoking of two standard cigarets on the cutaneous temperatures of the extremities while sitting and during slow walking. In each instance there was a decrease of the cutaneous temperatures of the fingers and toes. Similar results were obtained for 2 other subjects.

GROUP III. *Basal metabolism.* As has been shown previously, there is a more or less linear¹⁸ relation

18. Sheard, C., and Williams, M. M. D.: Skin Temperatures of the Extremities and Basal Metabolic Rates in Individuals Having Normal Circulation, Proc. Staff Meet., Mayo Clin 15:758-762 (Nov. 27) 1940.

between the cutaneous temperature of the toes and the basal metabolic rate. Figure 3 shows further evidence of this relation. After the smoking of two standard cigarettes the variation of the decrease of the cutaneous temperatures and the relation with the basal metabolic rate are evident. Figure 4 shows the effect of smoking

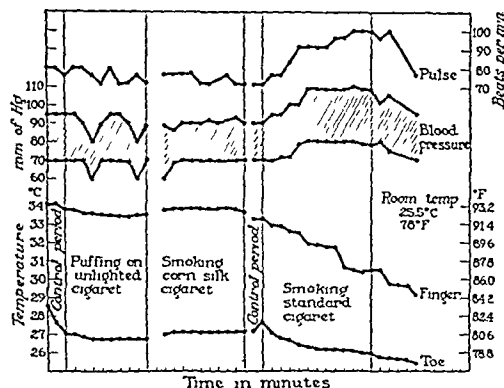


Fig. 1.—Effect of puffing on an unlighted cigarette, smoking two corn silk cigarettes and smoking two standard cigarettes on the cutaneous temperature of the extremities, blood pressure and pulse rate of the same subject. The cutaneous temperature curves of only one toe and one finger are shown. The control period in each instance was thirty minutes.

two standard cigarettes on the basal metabolic rate and the effect of smoking two corn silk cigarettes. For these particular subjects the basal metabolic rate increased with the smoking of two standard cigarettes and decreased with the smoking of two corn silk cigarettes.

GROUP IV. Electrocardiography. All tracings taken after the smoking of standard cigarettes resulted in an increase of heart rate averaging between 15 and 36 beats per minute. A decrease of the amplitude of the T waves was noted for all subjects. The average decrease was between 1 and 2 mm. in all leads, and in a few instances the T waves in lead 3 became isoelectric. The greatest decrease of amplitude of T waves was noted after the smoking of standard cigarettes. The tracings taken after the subject had smoked corn silk cigarettes did not show any increase of heart rate or, at most, 5 beats per minute. The majority of these

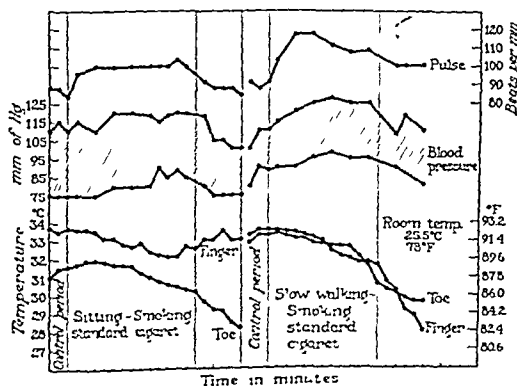


Fig. 2.—Effect of smoking two standard cigarettes on the cutaneous temperatures of the extremities, the blood pressure and the pulse rate of the same subject while sitting and during slow walking. Note the decrease of the cutaneous temperature.

tracings after the smoking of corn silk cigarettes did not show any change of amplitude of the T waves, the maximal decrease of amplitude of the T waves ranged between 0.5 and 1.0 mm. and in 3 instances there was a slight increase of amplitude of the T waves. Changes of amplitude of the QRS were negligible and

in no instance was there an increase of the PR or the QRS intervals. Figure 5 demonstrates the typical electrocardiographic changes on the same subject on different days under the foregoing conditions.

GROUP V. Intravenous administration of nicotine. With the intravenous administration of isotonic solution of sodium chloride for fifteen minutes previous to the injection of nicotine there was a slight decrease of the cutaneous temperature of the extremities of 2 of the subjects. After the administration of 2 mg. of nicotine there was a sharp decrease of the cutaneous temperatures of the extremities of all subjects, at least parallel to that of smoking two standard cigarettes and in 2 instances greater than that obtained by smoking two standard cigarettes. Figure 6 demonstrates the changes of cutaneous temperatures after the smoking of corn silk and standard cigarettes and after intravenous administration of nicotine.

The electrocardiographic tracings taken during the intravenous administration of isotonic solution of sodium chloride did not show any increase of the heart rate, and in 1 instance the tracing showed a decrease

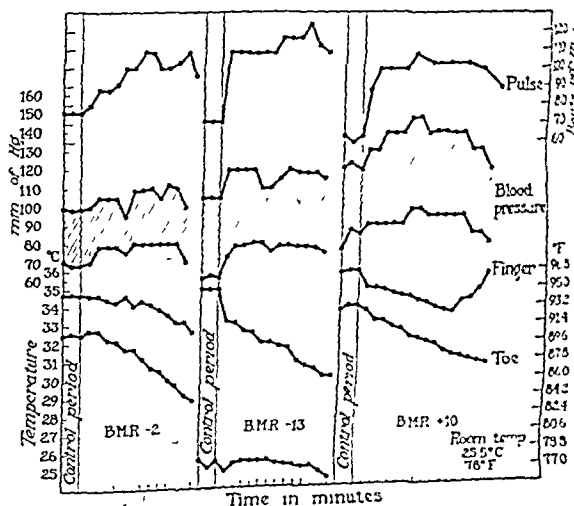


Fig. 3.—Effect of smoking two standard cigarettes on the cutaneous temperature of the extremities, the blood pressure and the pulse rate of 3 normal subjects characterized by three different basal metabolic rate. When the basal metabolic rate is low the cutaneous temperature of the toes is correspondingly low; when the basal metabolic rate is high the cutaneous temperature of the toes is high.

of the heart rate. There was either no change of the amplitude of the T waves or a maximal decrease of between 0.5 and 1.0 mm. After the intravenous administration of nicotine the tracings taken resulted in an average increase of heart rate of between 30 and 40 beats per minute. A decrease of amplitude of the T waves averaging between 1 and 3 mm. in all leads occurred in all subjects, and in a few instances the T waves demonstrated negativity in lead 3. Changes of amplitude of the QRS were negligible, and in no instance was there an increase of the PR or the QRS intervals. Figure 5 demonstrates the typical electrocardiographic changes on the same subject on different days under the foregoing conditions.

GROUP VI. Blood pressure including the cold pressor test and pulse rates. The average basal blood pressure for fourteen observations before smoking was 99 mm. of mercury systolic with a range from 90 to 120, while the average basal diastolic blood pressure was 69 mm. of mercury with a range from 60 to 85 (table 1). During the smoking of two standard cigarettes the average

blood pressure increased 19 mm. of mercury for the systolic and 14 mm. of mercury for the diastolic, with a range of 10 to 35 in the systolic and 6 to 20 in the diastolic. The average basal pulse rate was 69 beats per minute, with a range from 48 to 82 beats per minute. During smoking the pulse rate increased an average of 36 beats per minute, with a range from 20 to 52 beats per minute. When two corn silk cigarettes were smoked the average basal blood pressure was 99 mm. of mercury for the systolic and 62 for the diastolic (table 2). The average increase during the smoking of two corn silk cigarettes was 3 mm. of mercury in the systolic and 4 in the diastolic. The pulse rate likewise was increased only 4 beats per minute from the basal level of 70 beats per minute. This was in contrast to an increase of 36 beats per minute during the smoking of two standard cigarettes. There were 3 normal reactors to the cold pressor test and 3 hyperreactors to the cold pressor test.

COMMENT

While the subjects were resting in a supine position and smoking standard cigarettes there was a decrease of the cutaneous temperatures of the extremities, which

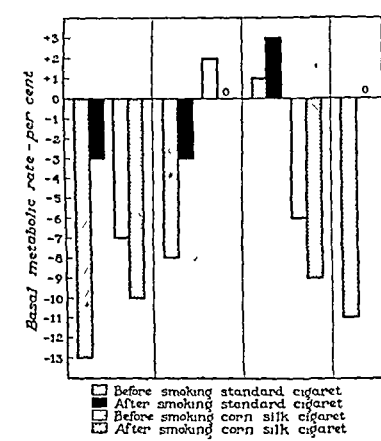


Fig. 4.—Effect of smoking two standard cigarettes and two corn silk cigarettes on the basal metabolic rates of 4 subjects. The fourth subject did not smoke corn silk cigarettes.

been performed we have observed the same results. In our observations the decrease of cutaneous temperatures continued for half an hour to one hour after smoking ceased. This decrease of cutaneous temperatures has been noted generally by other observers in similar studies. While a subject was smoking corn silk cigarettes the decrease of cutaneous temperatures was negligible, and similar results were observed by Weatherby¹¹ and by Maddock and Coller,¹⁹ using cigarettes without nicotine. Further, the effects of smoking corn silk cigarettes were not irritating, as evidenced by the absence of nasopharyngeal irritation and coughing. It was observed that French ashless cigarette papers with standard cigarette tobacco or the British cigarette filter holder did not nullify the decrease of cutaneous temperatures when the subject was smoking standard cigarettes. The latter observation confirms the previous report of Moyer and Maddock.²⁰

In these studies with standard cigarettes the decrease of the cutaneous temperature of the toes was less than that of the fingers. This difference may be due to the

effect of the small amount of nicotine on the sympathetic nervous system. Generally, in the simple heat regulatory mechanism of the extremities, vasoconstriction occurs first and more decidedly in the feet and later in the hands if there is a demand for further regulation.

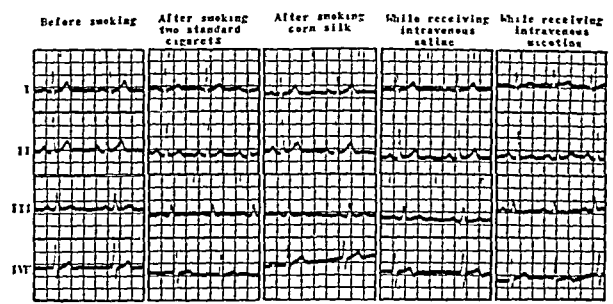


Fig. 5.—Electrocardiographic tracings taken on the same subject on different days. In the tracings the heart rate is the same before smoking, after smoking corn silk and while receiving saline solution intravenously, and the amplitude of the T waves does not vary more than from 0.5 to 1.0 mm. The heart rate after the subject had smoked two standard cigarettes was 100 beats per minute; while the subject was receiving nicotine intravenously the rate was 110 beats per minute. The amplitude of the T waves decreased about 1 mm. more as the result of intravenous administration of nicotine than during the smoking of two standard cigarettes. There was a definite decrease both from smoking two standard cigarettes and from the intravenous administration of nicotine, averaging between 1 and 3 mm.

We agree with Evans and Stewart¹² that little or no change took place when the subject puffed on an unlighted cigarette with the normal depth and frequency used in smoking. The degree of response to smoking varies among individuals and for the same subject from day to day, which was also observed by Wright and Moffat⁸ and by Mulinos and Shulman.²¹ As a result, new basal levels for each study must be obtained for blood pressure, basal metabolic rates and cutaneous temperatures.

Although most smoking occurs while a person is sitting or walking, it appears from the literature that

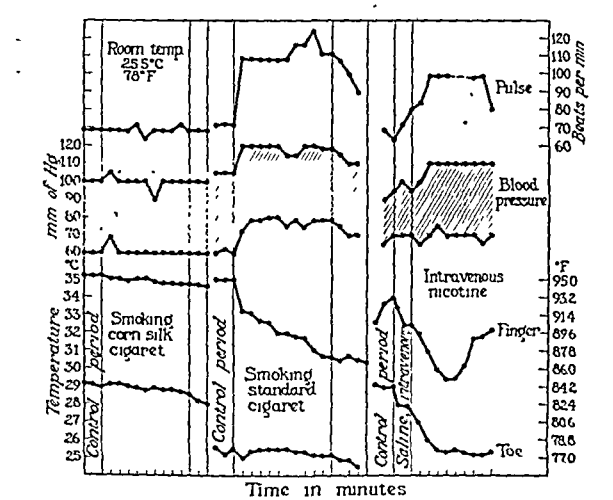


Fig. 6.—Effect of smoking two corn silk cigarettes, of smoking two standard cigarettes and of an intravenous injection of 2 mg. of nicotine on the cutaneous temperature of the extremities, the blood pressure and the pulse rate of the same person.

little work has been done under these conditions. Weatherby¹¹ found that the decrease of cutaneous temperatures after the smoking of standard cigarettes was

19. Maddock, W. G., and Coller, F. A.: Peripheral Vasoconstriction by Tobacco and Its Relation to Thromboangiitis Obliterans, *Ann. Surg.* 98: 70-81 (July) 1933.
20. Moyer, C. A., and Maddock, W. G.: Peripheral Vasoconstriction from Tobacco, *Arch. Surg.* 40: 277-285 (Feb.) 1940

21. Mulinos, M. G., and Shulman, I.: The Effects of Cigarette Smoking and Deep Breathing on the Peripheral Vascular System Studied by Five Methods, *Am. J. M. Sc.* 199: 708-720 (May) 1940

neutralized by mild physical activity. In our subjects who were fully clothed and who smoked while sitting the usual drop of cutaneous temperature and increase of blood pressure and pulse rate occurred. When our subjects were clothed and were allowed to walk about the psychrometric room after the smoking of two standard cigarettes the decrease of cutaneous temperatures of the toes and fingers and the increase of blood pressure and pulse rate were the same as while the subjects were at rest under basal conditions.

The basal metabolic rate increased after our subjects had smoked standard cigarettes under basal conditions. These results are similar to those of Goddard and Voss²² and of Evans and Stewart,¹² who found an increase in 69 per cent of their subjects. Three of our subjects, smoking corn silk cigarettes, showed a decrease of basal metabolic rate. These changes may be significant, since Main²³ has observed that the alveolar carbon dioxide tension was lowered after the smoking of standard cigarettes, while nicotine free cigarettes produced very much less effect.

When the subjects smoked standard cigarettes the most common changes in the electrocardiographic tracing were an increase of heart rate and a lowering of the amplitude of the T waves in all leads. Similar changes were observed by Graybiel, Starr and White,²⁴ although their subjects smoked only one cigaret before the tracing was taken. They ascribed these changes to the action of the nicotine on the cardiac ganglions, and they also found that these changes were similar to those observed in atropinization. Therefore they concluded that nicotine causes parasympathetic paralysis and sympathetic stimulation. When our subjects smoked corn silk cigarettes there was a negligible increase of heart rate with no appreciable lowering of the amplitude of the T waves; in fact in some instances there was a slight elevation. In contrast, Evans and Stewart¹² found a decrease of amplitude of the T waves in 71 per cent of their cases after their subjects had smoked corn silk cigarettes, fully denicotinized cigarettes and commercially denicotinized cigarettes. They also found an increase of pulse rate and blood pressure, which was not apparent in our subjects who smoked corn silk cigarettes. When isotonic solution of sodium chloride was given our subjects intravenously there was a slight decrease of amplitude of the T waves, but when nicotine was given through the same apparatus without the subject's knowledge of the change the increase of the heart rate and the decrease of the amplitude of the T waves were even greater than those which occurred after the subject had smoked two standard cigarettes.

During the intravenous administration of isotonic solution of sodium chloride the cutaneous temperatures, particularly of the toes, decreased slightly but a basal level was soon attained. With the introduction of the nicotine into the isotonic solution of sodium chloride without the subject being aware of the particular time of the injection of the nicotine, cutaneous temperatures of the extremities decreased in a similar manner to that obtained after the smoking of two standard cigarettes, but the decrease was more rapid and of greater mag-

nitude. As this decrease did not occur while the subject was smoking corn silk cigarettes, it appears that the effect may be due primarily to the nicotine content of standard cigarettes. These results are similar to those previously obtained by Maddock and Coller¹⁹ and by Moyer and Maddock²⁰ and are interesting in the light of the studies of Haag,²⁵ who found while working with animals that the effect of smoke solutions was proportional to their nicotine content.

It appears that intravenously administered isotonic solution of sodium chloride has little effect on the electrocardiographic tracing but that 2 mg. of intravenously administered nicotine accounts for the changes observed. Many investigators have observed that either stimulation of the sympathetic nerves or injection of epinephrine causes an increase of amplitude of the T waves, while stimulation of the vagus nerves or the injection of acetylcholine causes a decrease of their amplitude. As stated previously, changes of the T waves after administration of nicotine are similar to the changes resulting from atropinization. It appears likely that the action of nicotine on the vagus and sympathetic ganglions would account for the increase of blood pressure and pulse rate. Whatever adjustment the heart makes for increase of blood pressure and pulse rate must account for the decrease of amplitude of the T waves, and the latter phenomenon did not occur in the absence of nicotine.

While our observations were carried out on normal subjects, similar decreases of amplitude of the T waves, although of greater magnitude, have been observed in persons suffering from coronary disease during anoxemia tests, as performed by Patterson and his co-workers,²⁶ who used 10 per cent oxygen with nitrogen for as long as fifteen to twenty minutes. However, anoxemia appears unlikely to be the causative factor of the changes that we observed, since evidence has been given that the alveolar carbon dioxide tension was lowered after the smoking of standard cigarettes.

The blood pressure and pulse rate were increased in all our subjects as a result of smoking standard cigarettes, confirming previous observations of many investigators. The increase persisted while the subject was smoking and not longer than fifteen minutes after he stopped smoking. However, there was no increase of blood pressure or pulse rate as the result of smoking corn silk cigarettes. This observation was noted by Main²³ and by Maddock and Coller¹⁹ using nicotine free cigarettes but is at variance with the results of Evans and Stewart,¹² who obtained similar increase with corn silk and denicotinized cigarettes. It was found that French ashless cigaret papers and a popular British cigaret filter holder used with standard tobacco gave the same results as when standard cigarettes were used alone, and that when they were used with corn silk they gave the same results as when corn silk was used alone. When nicotine was administered intravenously the increase of blood pressure and pulse rate was similar to that encountered after the smoking of two standard cigarettes.

Apparently the cold pressor test gives little if any insight into the reaction produced by tobacco on the blood pressure of a normal subject. One subject, a hyperreactor to the cold pressor test, was a normal

22. Goddard, V. R., and Voss, J. G.: The Immediate Effect of Cigaret Smoking on Basal Metabolic Rates of University Men and Women, *J. Lab. & Clin. Med.*, **27**: 787-791 (March) 1942.

23. Main, R. J.: Acute Effects of Smoking on Respiration and Circulation, *Proc. Soc. Exper. Biol. & Med.*, **48**: 495-500 (Nov.) 1941.

24. Graybiel, A.; Starr, R. S., and White, P. D.: Electrocardiographic Changes Following the Inhalation of Tobacco Smoke, *Am. Heart J.*, **15**: 89-99 (Jan.) 1938.

25. Haag, H. B.: The Physiologic Activity of Cigaret Smoke Solutions as Related to Their Nicotine Content, *J. Lab. & Clin. Med.*, **25**: 617-624 (March) 1940.

26. Patterson, J. E.; Clark, T. W., and Levy, R. L.: Comparison of Electrocardiographic Changes Observed During "Anoxemia Tests" in Normal Persons and in Patients with Coronary Sclerosis, *Am. Heart J.*, **23**: 837-846 (June) 1942.

reactor to tobacco. Likewise, a normal reactor to the cold pressor test was a hyperreactor to tobacco. As other observers have seen, there are reactors to cold and reactors to tobacco. The blood pressure of other subjects reacted the same both to the cold pressor test and to tobacco.

After our subjects had smoked standard cigarettes it was found that the blood pressure and pulse rate and the electrocardiogram returned to normal within five to fifteen minutes. However, the peripheral vascular constriction indicated by the cutaneous temperatures of the extremities persisted from half an hour to an hour and in some cases much longer. These observations make us conclude, as did Maddock and Collier,¹⁹ that the smoking of standard cigarettes should be avoided in the presence of peripheral vascular disease. As Pratt²⁷ has suggested, the habit of giving an injured soldier a cigarette is not advisable if arterial injury has occurred, as segmental spasm of the artery is common in such trauma and the vasoconstriction in a person sensitive to tobacco may cause irreparable damage.

SUMMARY

Observations on six normal subjects yielded the following results:

1. When the subjects were resting in a supine position after smoking two standard cigarettes or French ashless cigarette paper with standard tobacco or standard cigarettes in the British cigarette filter holder the cutaneous temperatures of the extremities of all the subjects decreased. In contrast, when two corn silk cigarettes were smoked there was little if any change of the cutaneous temperatures of the extremities.

2. When fully clothed normal subjects were sitting or engaged in slow walking, the temperatures of the extremities also decreased to the same degree after the smoking of two standard cigarettes as while the subjects were in a resting, supine position.

3. An increase of the basal metabolic rate occurred after the smoking of two standard cigarettes, whereas the rate decreased after the smoking of two corn silk cigarettes.

4. Consistent changes of the electrocardiographic tracing developed after the smoking of two standard cigarettes. The changes consisted in an increase of heart rate and a lowering of the amplitude of the T wave. Such changes were negligible after the smoking of corn silk cigarettes.

5. When saline solution was given intravenously previous to the intravenous injection of nicotine there was at first a slight drop of the cutaneous temperatures of the extremities, but when nicotine was added to the solution the decrease was rapid and pronounced. After the injection of nicotine the electrocardiographic tracing demonstrated a definite increase of heart rate and a lowering of the T waves even greater than that seen after the subjects had smoked two standard cigarettes.

6. There was an increase of blood pressure and pulse rate after either the smoking of two standard cigarettes or the intravenous injection of 2 mg. of nicotine. After the smoking of two corn silk cigarettes there was little or no change of blood pressure and pulse rate.

7. While some subjects may show a parallelism between hyperreaction to the cold pressor test and hypersensitiveness to tobacco, many other persons may hyperreact to one or the other alone.

THE CAUSE OF DEATH IN RHEUMATIC HEART DISEASE IN ADULTS

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Although rheumatic fever has been the subject of numerous and extensive studies, many aspects of its natural history still remain open to scientific investigation. This is particularly true with reference to rheumatic fever and rheumatic heart disease in adults, since the greatest number of investigations have been made on patients during their childhood and adolescence. The number of adults with rheumatic fever is not negligible. According to Cohn and Lingg¹ the percentage of these cases occurring in early maturity is 42, embracing, of course, the survivors from childhood (23 per cent) and adolescence (9 per cent) plus the new cases which occur at this age period (10 per cent).

TABLE 1.—*Causes of Death According to Bland and Jones's Classification*

A. Acute rheumatic fever.....	2
Acute rheumatic fever and congestive failure.....	22
Congestive failure.....	15*
B. Bacterial endocarditis.....	18
C. Other causes related to the heart.....	14
D. Causes unrelated to the heart.....	8
E. Unknown causes.....	1
Total cases.....	100

* Of these 15 cases with congestive failure without evidence of acute rheumatic fever, 25 showed important complications, some of which were doubtless responsible for the congestive failure itself or for death; these complications were as follows: pulmonary infarction in 10 cases (7 with normal rhythm and 3 with auricular fibrillation), bronchopneumonia in 10 cases (5 with normal rhythm and 5 with auricular fibrillation) and auricular fibrillation in the remaining 5 cases. Thus auricular fibrillation was present in 13 of these cases.

TABLE 2.—*Number of Patients by Decades*

Decades.....	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Number of patients....	16	27	15	23	13	5	1

The present paper submits an analysis of 100 unselected fatal cases of rheumatic heart disease over the age of 20 years at death and examined post mortem. They were collected from the records of the Massachusetts General Hospital and include patients from 1927 to 1943 inclusive. On looking at the figures one should take into account the cause of death. Since any one of two, three or four factors may be the cause of death, it is often difficult to ascertain which is the main determinant factor. Nevertheless we have made an effort to determine the cause of death as precisely as possible. The myocardium was examined for active rheumatism.

In an attempt to analyze these cases according to Bland and Jones's² classification of causes of death (in 306 young persons with rheumatic fever or its sequelae, the great majority of whom were children), our own results given in table 1 were obtained.

Grouped in decades at the time of death, the number of patients was classified as in table 2.

1. Cohn, A. E., and Lingg, C.: The Natural History of Rheumatic Cardiac Disease, *J. A. M. A.* 121: 1-8 (Jan. 2) 1943.

2. Bland, E. F., and Jones, T. D.: Fatal Rheumatic Fever, *Arch. Int. Med.* 61: 161-171 (Feb.) 1938.

27. Pratt, G. H.: The Importance of a Knowledge of Vascular Surgery in World War II, editorial, *Am. J. Surg.* 56: 335-336 (May) 1942.

Classified by sex, there were 51 males and 49 females. In the 57 cases in which data were obtained, the age at onset of the rheumatic fever was as shown in table 3. The mean duration of the disease was 24.7 years in this group.

TABLE 3.—Age at Onset of Fever

Decades.....	0-9	10-19	20-29	30-39	40-49	50-59
Number of patients.....	10	30	11	4	0	2

TABLE 4.—Duration in Years as Related to Age in Decades

Decades.....	0-9	10-19	20-29	30-39	40-49	50-59
Duration.....	26.4	28	23.7	18.5	..	27

TABLE 5.—Age at Death as Related to Cause of Death

Decades.....	20-29	30-39	40-49	50-59	60-69	70-79	80-89	Total
Rheumatic fever, acute.....	..	1	1	..	..	..	..	2
Acute rheumatic fever and congestive failure.....	5	6	5	4	1	1	..	22
Congestive failure.....	3	12	6	6	7	..	1	35
Bacterial endocarditis.....	7	6	..	4	..	1	..	18
Other causes related to heart.....	1	1	3	6	2	1	..	14
Causes unrelated to heart.....	..	1	..	2	3	2	..	8
Unknown causes.....	..	..	..	1	..	..	..	1
Number of patients.....	16	27	15	23	13	6	1	100

TABLE 6.—Sex as Related to Cause of Death

	Male	Female
Rheumatic fever, acute.....	0	2
Acute rheumatic fever and congestive failure.....	14	8
Congestive failure.....	19	16
Bacterial endocarditis.....	11	7
Other causes related to heart.....	4	10
Causes unrelated to heart.....	3	5
Unknown causes.....	..	1
Total.....	51	49

The duration in years as related to the age in decades at the onset of the disease is given in table 4.

The age at the time of death as related to the cause of death is given in table 5.

The sex as related to the cause of death is given in table 6.

The duration of the disease in the group of 57 patients as related to the cause of death is given in table 7.

In table 8 the valvular lesions and mean heart weight are distributed according to the cause of death.

In table 9 we have compared the figures which we obtained with those compiled by Bland and Jones.

COMMENT

In studying table 9 one may note that acute rheumatic fever as a cause of death occurs to a lesser extent in adults than in children; in the former group it was present in only 24 per cent of the cases, while in the latter group it was present in 75 per cent. Congestive failure without the exciting factor of acute rheumatic fever is a minor factor as a cause of death in children (only 7 per cent), while in adults it is the chief cause responsible for death (35 per cent). The latter figure is quite close to that given by Laws and Levine³ for patients from the Peter Bent Brigham Hospital. These writers, working on a group of 148 patients of which the youngest was 12 years old, encountered congestive

failure as a cause of death in 33.1 per cent of the cases. Martin,⁴ studying the cause of death in 431 children having rheumatic fever, found that 80 per cent of the deaths were due to rheumatic infection and less than 1 per cent to congestive heart failure.

The percentage of deaths in adults due to congestive failure deserves, nevertheless, a special comment concerning the concomitance of other factors which undoubtedly represent an important role in the death of such patients. We are referring particularly to pulmonary infarction, bronchopneumonia and auricular fibrillation. In a total of 35 cases of congestive failure, auricular fibrillation occurred thirteen times, bronchopneumonia or pneumonia ten times and pulmonary infarction ten times. One cannot underestimate the importance of auricular fibrillation as a precipitating factor in many cases of congestive failure. Arteriosclerosis and hypertension are still to be regarded as complicating elements in some instances. Thus there remain few patients for whose death congestive failure appears to be the only and isolated factor directly responsible.

TABLE 7.—Duration of Disease as Related to Cause of Death

	Duration in Years	No. of Cases
Rheumatic fever, acute.....	23	2
Acute rheumatic fever and congestive failure.....	19.3	14
Congestive failure.....	31.6	22
Bacterial endocarditis.....	17.9	9
Other causes related to heart.....	28.6	7
Causes unrelated to heart.....	41.7	3
Unknown causes.....	..	..

TABLE 8.—Valvular Lesions and Mean Heart Weight Distributed According to Cause of Death

	Valvular Lesions *							Heart Weight
	M	A	MA	MT	MAT	MAP	MATP	
Rheumatic fever, acute.....	..	..	2	..	..	..	..	322
Acute rheumatic fever and congestive failure.....	2	1	10	..	8	1	..	520
Congestive failure.....	5	3	20	1	5	..	1	578
Bacterial endocarditis.....	0	..	0	..	3	..	..	483
Other causes related to heart.....	2	1	8	..	3	..	..	573
Causes unrelated to heart.....	4	..	4	..	..	..	..	325
Unknown causes.....	..	..	..	1	..	..	..	325
Total.....	19	5	32	2	19	1	1	420

* M = mitral, A = aortic, T = tricuspid, P = pulmonary.

TABLE 9.—Authors' Observations Compared with Those of Bland and Jones

	Bland and Jones	Juca and White
Rheumatic fever, acute.....	8%	24%
Acute rheumatic fever and congestive failure.....	67%	24%
Congestive failure.....	1%	35%
Bacterial endocarditis.....	6%	18%
Other causes related to heart.....	2%	14%
Causes unrelated to heart.....	2%	1%
Unknown causes.....	4%	1%

Bacterial endocarditis was seen in 18 per cent of the patients. This is undoubtedly a high figure, but it probably represents an accurate one in daily practice with adult patients. For comparison one may note the

3. Laws, C. L., and Levine, S. A.: Clinical Notes on Rheumatic Heart Disease with Special Reference to the Cause of Death, *Am. J. M. Sc.* 186: 833-849 (Dec.) 1933.

4. Martin, A. T.: Twenty Years' Observation of 431 Children with Rheumatic Heart Disease, *J. A. M. A.* 117: 1663-1670 (Nov. 15) 1914.

figures given for children by Bland and Jones² (6 per cent), Stroud⁵ (6 per cent) and May Wilson⁶ (2 per cent). On the other hand, Davis,⁷ working in a mixed group of children and adult patients, encountered bacterial endocarditis in 13.7 per cent, and Laws and Levine,³ dealing only with patients over 12, in 29 per cent of the cases.

Classified in the group "other causes related to heart" are 5 cases of myocardial infarction, 3 of cerebral embolism and 1 of mesenteric embolism.

In the group "causes unrelated to heart" there are 1 carcinoma, 1 lymphoblastoma (Hodgkin's type), 2 aortic thrombus, 1 bronchopneumonia, 1 necrosis of the liver, 1 hepatic cirrhosis and 1 cholangitis.

The greatest mortality occurred in the fourth decade, that is, in patients between 30 and 39 years of age, the oldest patient being an 82 year old woman afflicted with aortic and mitral lesions, who died in congestive failure thirty-two years after the onset of her rheumatic heart disease. In this case, as in some reported by White and Bland,⁸ rheumatic lesions "may be regarded as largely of academic interest, provided rheumatic reactivation does not take place."

In the present series, with reference to sex in rheumatic fever, the figures obtained were analogous to the figures found in statistics dealing with many thousands of cases. In other words, the number of cases encountered in the two sexes is about the same.

The largest number of first attacks of rheumatic fever, more than 50 per cent of the total, occurred in the second decade, that is, between 10 and 19 years of age.

It is interesting to note that in the table in which we have recorded the duration of disease as related to cause of death the minimum duration was found in the group of bacterial endocarditis and the maximum in the group of causes unrelated to the heart.

In the table dealing with valvular lesions we see that in most of the cases there was involvement of several valves. It is also curious to note that in the group "bacterial endocarditis" the association of mitral and aortic lesions predominates. It seems that in rheumatic heart disease those patients who show the combination of mitral and aortic lesions are more likely to get bacterial endocarditis.

The heart weight was maximal in the series of patients who died in congestive failure and minimal for those of the group "causes unrelated to heart."

In a consideration of valvular lesions found at death, the average duration of life after the first attack of rheumatic fever was mitral 22, aortic 37, mitral and aortic 30, and mitral, aortic and tricuspid 18 years. One may infer from these figures that isolated aortic involvement is the best tolerated valvular lesion. The group with unassociated mitral lesions had an average of life shorter than the combined mitral and aortic lesions, but the number of cases in each group was inadequate for final conclusions in this respect.

SUMMARY

We have studied the cause of death in 100 unselected fatal cases of rheumatic heart disease over the age of 20 years. All of the patients were submitted to post-

mortem examination. The relationship of age, sex, expectancy of life, valvular lesions, and heart weight to the cause of death was considered. It was found that congestive failure without evident acute rheumatism accounted for 35 per cent of the fatalities, acute rheumatic fever and congestive failure for 22 per cent, bacterial endocarditis for 18 per cent, other causes related to the heart for 14 per cent, causes unrelated to the heart for 8 per cent, acute rheumatic fever alone for 2 per cent and unknown causes for 1 per cent.

BROMIDE INTOXICATION

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In recent years many writers¹ have described the clinical picture of bromide intoxication and have emphasized the importance and prevalence of this condition. The effect of these writings on the incidence of bromide poisoning, however, appears to have been slight. Bromide intoxication continues to be a common condition for two reasons: (1) the uncontrolled sale of many different patented pain remedies, many of which contain sodium or potassium bromide, and (2) the widespread use of this drug for prolonged periods by practicing physicians. Apparently it is still not generally realized that bromides may produce severe intoxication, and the signs and symptoms of bromide intoxication are not always recognized when they appear. All too often the dosage of bromide is increased by the physician in order to combat the early signs of bromide intoxication; insomnia, restlessness, "dizziness," weakness and particularly headache, when the safer course would be to discontinue the drug and, if necessary, prescribe a different sedative. It should be remembered that bromides exert an accumulative effect and that bromide excretion and retention are intimately related to sodium chloride and fluid intake.

Of the 49 cases reported here the histories record that a physician was responsible for the excessive bromide intake in 28 instances. In 10 of the 20 cases seen at the North Carolina Baptist Hospital, and in 18 of the 29 cases reported from the Vanderbilt Hospital, bromide had been taken on the prescription of a physician. In most instances they were sent to the hospital by the physicians for diagnosis. Only 10 patients are known to have been poisoned because of excessive self medication with various patented pain remedies, including "Stanback," "B. C." and "Bromo-Seltzer." In 11 cases the source of the bromide was unknown.

My purpose in the present communication is to reemphasize the high incidence of bromide intoxication and to suggest, as others have previously done, that more caution be employed in the use of these compounds.

CLINICAL STUDY

From January 1943 to December 1943, 20 cases of bromide poisoning were treated in the medical wards of the North Carolina Baptist Hospital, a relatively small service of 40 beds. Few have been the days

5. Stroud, W. D., and Twaddle, P.: Fifteen Years' Observation of Children with Rheumatic Heart Disease, *J. A. M. A.* **114**: 629-634 (Feb. 24) 1940.

6. Wilson, M. G.; Lings, C., and Croxford, G.: Statistical Studies Bearing on Problems in Classification of Heart Disease. Heart Disease in Children, *Am. Heart J.* **4**: 164-196 (Dec.) 1928.

7. Davis, D., and Weiss, S.: Rheumatic Heart Disease, *Am. Heart J.* **7**: 146-156 (Dec.) 1931.

8. White, P. D., and Bland, E. F.: Mitral Stenosis After Eighty, with Especial Reference to Dr. Herman F. Vickery, *J. A. M. A.* **116**: 2001-2004 (May 3) 1941.

From the Department of Internal Medicine, Bowman Gray School of Medicine of Wake Forest College and the North Carolina Baptist Hospital, Winston-Salem, N. C., and the Department of Internal Medicine, Vanderbilt University Medical School, Nashville, Tenn.
1. Curran, T. J.: A Study of Fifty Cases of Bromide Psychosis, *J. Nerv. & Ment. Dis.* **88**: 163 (Aug.) 1938. Kitching, E. H.: Mental Symptoms in Bromide Intoxication, *Brit. M. J.* **1**: 754, 1942. Pilkington, P.: Bromide Therapy and Intoxication, *ibid.* **1**: 10, 1941. De Gowing, Gurrard, Gundry, Hanes and Yates, Wagner and Bunbury.

during the past year when this service has not been the host to from 1 to 3 such patients. The patients who have been admitted to the hospital represent only the more severe intoxications. A number of milder cases have been treated in the outpatient department and are not considered here. In addition to the cases seen at the North Carolina Baptist Hospital, this report includes 29 cases diagnosed as bromide intoxication over a three year period at the Vanderbilt University Hospital.

In this group of 49 persons there were 31 females and 18 males. This difference in sex incidence was most evident in the North Carolina Baptist Hospital group, in which 15 of the 20 cases occurred in females. The ages of the patients ranged from 9 to 80 years, most of the cases being fairly well distributed among those between the ages of 20 and 70.

The clinical picture of bromide intoxication has been described repeatedly but is still not widely recognized. Hanes and Yates² emphasized the importance of recognizing the early symptoms of headache, diminished power of concentration and nervousness. They pointed out the similarity of these mild toxic symptoms to those of the common psychoneuroses and the danger of the physician prescribing increased bromide to combat these symptoms, thus precipitating the more severe forms of intoxication.

The outstanding signs and symptoms recorded in the histories of the 49 cases reported here are, in order of frequency, (1) mental confusion, (2) stupor, (3) delusions, (4) headache, (5) hallucinations, (6) nervousness, (7) weakness, (8) disturbances in gait, (9) brown furry coating of the tongue, (10) palpitation, (11) slurring of speech, (12) irritability, (13) depression or elation, (14) insomnia, (15) "smothering spells," (16) "dizziness," (17) anorexia, (18) nausea and

This low incidence of cutaneous eruptions is in agreement with the findings of most recent observers, who have pointed out that the occurrence of skin rash in bromism is not common and has been overemphasized in the past. There is no relationship between blood bromide level and cutaneous manifestations. De Gowing³

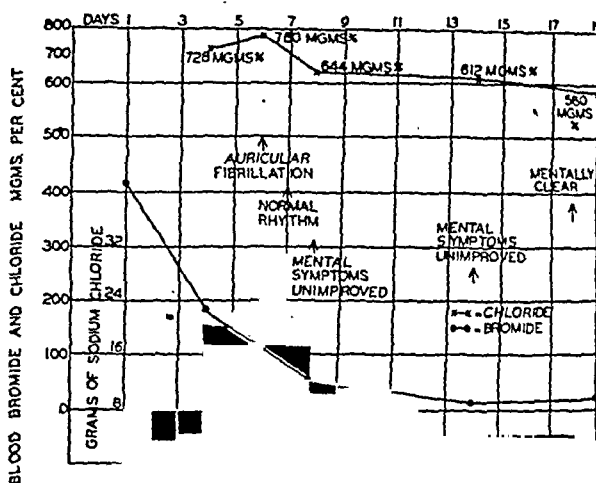


Chart 1 (M. D.).—Demonstration of the slow response in mental symptoms as contrasted with the prompt fall in blood bromide. An attack of paroxysmal auricular fibrillation occurred during the period of intensive sodium chloride therapy (20 to 30 Gm. daily).

cites the unpublished work of Kimberly, who concluded that the cutaneous manifestations that occasionally occur are due to idiosyncrasy rather than to the toxic effect of the drug. The low incidence of cutaneous manifestations would support this view.

Sixteen patients exhibited low grade elevations in temperature which disappeared after adequate treatment of the bromism. One patient, who was severely intoxicated, was confused and irrational and had considerable fever, varying between 39 and 40 C. (102.2-104 F.) for ten days. In addition, rigidity of the neck and a positive Kernig's sign made the diagnosis of meningitis likely. However, lumbar puncture revealed a normal spinal fluid under normal pressure. The spinal fluid contained 90 mg. per hundred cubic centimeters of bromide and the blood bromide level was 150 mg. per hundred cubic centimeters. The fever subsided and the meningeal signs slowly disappeared under treatment for the bromide poisoning.

In this series of cases there was no instance of bromism superimposed on an underlying major psychosis. In mental institutions, however, the incidence of bromism in such cases is quite high. Wagner and Bunbury⁴ reported that in 1,000 routine admissions to the Colorado Psychopathic Hospital 77 patients showed appreciable amounts of bromide in the serum. In 44 of these the mental symptoms were caused or aggravated by the bromide. Garrard⁵ found a blood bromide level above 50 mg. per hundred cubic centimeters in 27.5 per cent of 1,042 patients admitted consecutively to the North Carolina State Hospital for the Insane at Morganton over an eighteen months period of time. More than 4 per cent of the patients admitted had a blood bromide level above 150 mg. per hundred cubic centimeters, which the author considers the toxic level.

3. De Gowing, E. L., in discussion on Gundry.

4. Wagner, C. F., and Bunbury, D. Elizabeth: Incidence of Bromide Intoxication Among Psychotic Patients, *J. A. M. A.* 85:1725 (Dec. 6) 1930.

5. Garrard, R. L.: Bromide Therapy and Intoxication, *North Carolina M. J.* 3:597 (Nov.) 1942.

TABLE 1.—Signs and Symptoms of Bromide Intoxication

Signs and Symptoms	Number of Cases
Mental confusion.....	18
Stupor.....	15
Delusions.....	11
Headache.....	9
Hallucinations.....	9
Nervousness.....	7
Weakness.....	6
Gait disturbance.....	6
Coated tongue.....	5
Palpitation.....	4
Slurred speech.....	4
Irritability.....	3
Depression.....	3
Dizziness.....	3
Memory defect.....	2
Smothering spells.....	2
Insomnia.....	2
Nausea and vomiting.....	1
Transitory blindness.....	1
Transitory incontinence.....	1
Anorexia.....	1

vomiting, (19) transitory visual disturbance and (20) transitory incontinence (table 1).

A skin rash was noted in only 5 of the 49 cases. In 2 cases the rash was acneiform in character; in 1 the appearance was typical of erythema nodosum. The eruptions were not adequately described in 2 cases. In 2 other instances vague indefinite skin lesions were noted but were not believed to be related to the bromism.

2. Hanes, F. M., and Yates, Anne: An Analysis of 407 Instances of Chronic Bromide Intoxication, *South. M. J.* 31:667 (June) 1939.

One of our patients (chart 1) had been committed to a state mental institution when members of his family brought him to the North Carolina Baptist Hospital for observation before assigning him to an institution for the insane. This patient's wife, incidentally, was in the hospital at that time suffering from an identical condition (chart 2). After having brought his wife to the hospital two weeks previously, he had returned home and had consumed what remained of a pint of salty medicine (sodium bromide) that had been prescribed for his wife and had been the cause of her illness. After adequate treatment for the bromide poisoning both patients left the hospital completely well.

It is unfortunate that patients are so frequently marked by the stigma that goes with admission to a mental institution, because of bromism, a condition that may be easily suspected from the clinical picture, readily confirmed by examination of the blood and adequately corrected by simple therapy. Actually the disease should not exist, for it is entirely preventable by the observance of a few simple rules guiding the use of bromide-containing medications.

DISEASES ASSOCIATED WITH BROMISM

The most common associated and underlying diseases in this series were (1) functional nervous system disorders (anxiety state, neurasthenia, hysteria), (2) generalized arteriosclerosis, (3) cerebral arteriosclerosis, (4) heart disease, (5) malnutrition and avitaminosis, and (6) other drug intoxications, including acetanilid, phenobarbital and sulfonamide poisoning (table 2).

Aside from the high incidence of bromism in psychoneurotic and emotionally unstable patients, the condition occurs with some regularity in patients with certain other disorders. Patients with generalized arteriosclerosis and especially those with cerebral arteriosclerosis appear to be unusually susceptible to bromide intoxication. Anemia may often be a contributing factor, as was pointed out by Gundry.⁶ In patients suffering from these conditions smaller amounts of bro-

person a blood level of 150 mg. per hundred cubic centimeters is often associated with few or no symptoms, whereas in some patients with cerebral arteriosclerosis, malnutrition or anemia a blood level as low as 75 mg. per hundred cubic centimeters may be associated with the signs of severe intoxication.

TABLE 2.—Underlying and Associated Disease in Forty-Nine Cases of Bromism

Associated Disease	Number of Cases
Functional nervous system disorders (including anxiety state, neurasthenia, hysteria).....	17
Generalized arteriosclerosis.....	10
Cerebral arteriosclerosis.....	9
Heart disease.....	9
Malnutrition and avitaminosis.....	7
Other drug intoxications.....	5
Hyperthyroidism.....	3
Prostatic hyperplasia.....	3
Anemia.....	3
Cholelithiasis.....	2
Alcoholism.....	2
Gonorrhea.....	2
"Neuritis".....	2
Nontoxic thyroid adenoma.....	2
Liver disease.....	2
Carcinoma.....	1
Bronchial asthma.....	1
Sinusitis.....	1
Salpingitis.....	1
Arthritis.....	1
Menopausal syndrome.....	1
Syphilis.....	1
Water, deprivation of.....	1
Epilepsy.....	1

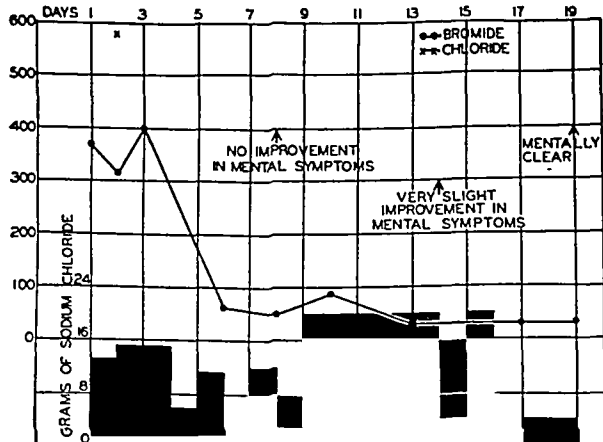


Chart 2 (R. D.).—Again illustrating the slow improvement in the mental symptoms and the prompt fall in the blood bromide level following intensive sodium chloride therapy.

mide and lower blood bromide levels are required to produce the symptoms of bromism. For this reason it is impossible to set a fixed blood bromide level above which the symptoms of intoxication always appear and below which they are absent. In an otherwise healthy

Nine patients in this series of cases exhibited the signs and symptoms of heart disease. Seven of the 9 had hypertensive cardiovascular disease, 1 had arteriosclerotic heart disease and 1 had severe cor pulmonale secondary to long standing bronchial asthma. The degree of intoxication in these patients varied from very mild to severe and roughly paralleled the height of the blood bromide levels. In all of the severe cases the blood level was 200 mg. per hundred cubic centimeters or higher. The efficiency of cardiac function in these patients varied from a slight disturbance to serious impairment with severe heart failure. There was no apparent relationship between the degree of heart failure and the severity of bromide intoxication. From this small series of cases it would appear therefore that, while bromide poisoning occurs rather frequently in patients who have heart disease, the heart disease does not in itself predispose such patients to bromide intoxication. It seems more likely that the presence of heart disease acts primarily as a factor in precipitating an anxiety state and that the bromides are taken or prescribed because of the latter condition.

The coexistence of heart failure and bromide poisoning presents a therapeutic problem of considerable importance, for in the treatment of one sodium chloride is withheld and in the treatment of the other the ingestion of sodium chloride is forced. No patient with heart failure who is being treated with a salt free or salt poor diet should be given bromides, and all such patients should be warned of the danger of using the various "patented" bromide containing remedies. When bromide poisoning exists in a patient with heart failure one may substitute ammonium chloride for sodium chloride, thus supplying the chloride need in

6. Gundry, L. P.: Bromide Intoxication: Report of 15 Cases, J. A. M. A. 113: 466 (Aug. 5) 1939.

the treatment of bromism and eliminating the sodium, the element that needs be withheld in the treatment of heart failure and edema.

TREATMENT

Fortunately the treatment of bromism is simple and effective. It consists in the administration of sodium chloride and the forcing of fluids to hasten the elimination of bromide. It is important to point out, however, that response to therapy, especially when the degree of intoxication is severe, is slow and rarely dramatic. Almost always the blood bromide level falls before there is any appreciable change in the patient's mental state. When the blood level is 250 mg. per hundred cubic centimeters or above there is usually a drop to 100 mg. per hundred cubic centimeters or less within five to seven days after the institution of adequate treatment. Improvement in mental symptoms, however, may lag far behind. This is illustrated by charts 1 and 2, in which it can be seen that, in spite of the prompt fall in blood bromide levels, nineteen days elapsed after the beginning of treatment before the patients became mentally clear.

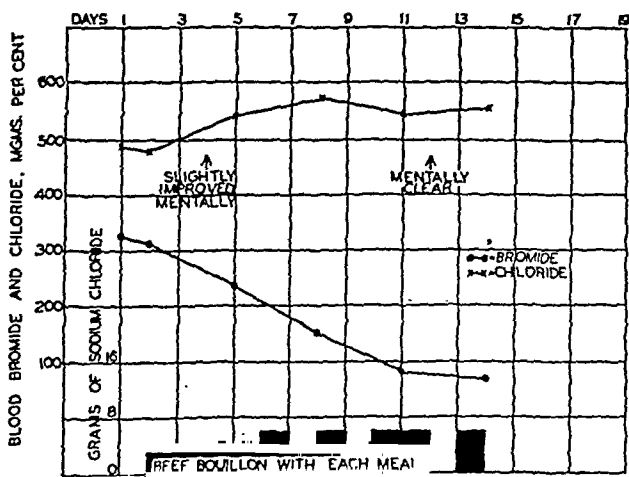


Chart 3 (T. P.).—Illustrating the steady and continuous fall in blood bromide level and clearance of mental symptoms of a patient receiving 6 to 8 Gm. of sodium chloride daily.

It is important to recognize this delay in the response of mental symptoms to treatment when the question arises, as it frequently does, as to whether the patient is suffering from an underlying major psychosis. The blood bromide level is of little aid in the evaluation of mental symptoms after treatment is begun. It becomes simply a matter of time and observation, and one is not justified in ascribing persisting mental symptoms to some condition other than bromism until at least three weeks have elapsed after the beginning of treatment. The reason for this persistence of the mental symptoms is unknown. The bromide ion exerts its pharmacologic effects through its presence in the extracellular fluids of the body, and the nervous system seems to be unusually sensitive to the substitution of bromide for chloride.⁷ The ratio of bromide to chloride in the extracellular fluids of the body everywhere is the same as that in the serum, except in the brain and cerebrospinal fluid, where the ratio is lower.⁸ It may be that the equilibrium between the blood and the

extracellular fluids of the nervous system occurs more slowly, thus accounting for the difference in the ratio between bromide and chloride ions. If this is true, then the slow improvement of the mental symptoms as contrasted with the prompt fall in the blood bromide level may be accounted for. Equilibrium between serum and brain and cerebrospinal fluid being slowly established, the substitution of chloride for bromide in the nervous system may occur much less rapidly than it does in the serum. Thus, while bromide is rapidly eliminated from the serum, it is slowly displaced in the nervous system and continues to exert its effect there.

Six to 8 Gm. of sodium chloride daily would appear to be the optimum dosage. Larger amounts, 15 to 30 Gm., may be given with somewhat more rapid fall in the blood bromide level, but to little advantage since increasing the salt dosage does not hasten the removal of the mental symptoms and has the disadvantage of causing nausea, vomiting and diarrhea. Such manifestations of too rapid administration of sodium chloride are not only unpleasant but may actually retard recovery because much needed fluid is lost by the vomiting and diarrhea and also because the sodium chloride intake cannot be adequately controlled. In 1 case (chart 1) a paroxysm of auricular fibrillation occurred during the period of intensive salt therapy.

When 6 to 8 Gm. of sodium chloride is given daily by mouth or parenterally, if necessary, the undesirable gastrointestinal side effects are usually avoided, and, while somewhat less abrupt, the fall in blood bromide level begins promptly and is steady and continuous (chart 3). Furthermore, the improvement in mental status seems to occur just as rapidly as when larger amounts of sodium chloride are given.

SUMMARY

Bromide poisoning has continued to be a common condition in spite of numerous clear expositions of its cause, prevention and treatment in the past fifteen years. Forty-nine additional cases have been observed.

More than 50 per cent of the cases in this series were referable to the injudicious use of bromides by practicing physicians and their failure to recognize the toxic effects, once they appeared. Other causes were the result of the uncontrolled sale of "patented" pain remedies containing bromide.

Mental symptoms due to bromide poisoning often respond much more slowly to treatment than does the level of bromide in the blood.

Paracelsus.—Paracelsus (1493-1541) was an original, although eccentric, figure, who is sometimes called the father of chemistry and the reformer of materia medica. He was born in Einsiedeln, near Zurich, Switzerland. He claimed to have traveled all over the world. He taught as professor of medicine in Basle and in other cities. His bombastic method of delivery, the license of his criticism of orthodox doctors, his theatrical tricks—such as publicly burning the works of Galen and Avicenna—led to his continual persecution, and he wandered from place to place in Germany, finally dying in Salzburg. Tradition says that he believed in, in fact owned, the philosopher's stone. His mind, his philosophy, looked back to the Middle Ages and forward to the Renaissance. He introduced mineral baths; he also introduced laudanum, mercury, lead, arsenic, iron, copper sulfate, tinctures and alcoholic extracts into the pharmacopoeia. He discarded and ridiculed the doctrine of the four humors. His principal works are *Chirurgia magna* (1536), *De gradibus* (1568), *A Treatise on Diseases of Minors* (1567).—Clendening, Logan: *Source Book of Medical History*, New York, Paul B. Hoeber, Inc., 1942.

7. Goodman, Louis, and Gilman, Alfred: *Pharmacological Basis of Therapeutics*, New York, Macmillan Company, 1941, pp. 155, 165.
8. Mason, M. F.: *Halide Distribution in Body Fluids in Chronic Bromide Intoxication*, J. Biol. Chem. 113: 61 (Feb.) 1936. Weir, E. G., and Hastings, A. B.: *The Distribution of Bromide and Chloride in Tissues and Body Fluids*, *Ibid.* 129: 547 (Aug.) 1939.

TOXIC REACTIONS OF SULFAGUANIDINE THERAPY

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In the course of sulfaguanidine therapy of ambulatory patients a significant number of complications were noted, which it is our purpose to report in this paper. The patients treated were 191 soldiers on a tropical isle. At the time of treatment they were either convalescent or contact carriers of *Shigella dysenteriae flexner*, W type. By "convalescent carriers" is meant those whose stool cultures, following complete symptomatic recovery from the acute stage of the disease, were found to be positive for the causal organism; the term "contact carriers" is applied to persons who at no time had any acute symptoms but whose stool cultures were positive.

In addition to a fairly large group, some 20 per cent, with subjective complaints, 22 patients (11.5 per cent) in this series developed objective reactions of sufficient severity to necessitate discontinuing sulfaguanidine. No evident correlation was found to exist between previous sulfaguanidine treatment and reactions. Eight (36.4 per cent) of the 22 patients with reactions had had previous therapy, as compared with 76 (40 per cent) of the entire group of 191. These 76 had received the drug earlier, in amounts up to 100 Gm, during their acute stage of dysentery.

Various considerations necessitated the division of patients into two groups, each of which was managed by one of us. The essentials of treatment in the two groups were the same, a ten day course of sulfaguanidine 3.5 Gm. three times daily for a total contemplated dosage of 105 Gm. Patients were on a "duty" status throughout, although light duty was recommended when possible. Limited laboratory facilities made it impossible, unfortunately, to obtain determinations of sulfaguanidine levels in the blood or stools. In one group of 83 cases blood counts and urinalyses were done at two to three day intervals, more frequently where complications were noted or suspected. In the other 108 cases blood counts and urinalyses were done only when reactions occurred, but care was taken to insure a urinary excretion of at least 1,500 cc. daily. No abnormalities in the blood picture were noted in any patient. Results in the two groups were closely parallel.

Febrile reactions, with oral temperatures ranging from 100 to 103.8 F., were noted in 18 cases, 9.4 per cent of the total treated. This complication appeared on the third to the fifth day of therapy in 11 cases. In 10 of the 18 no previous sulfaguanidine therapy had been given. On withdrawal of the drug the temperature returned to normal within twenty-four hours in all instances. In order to obtain confirmation that the drug was responsible for the pyrexia, 7 patients were then given additional sulfaguanidine. All became febrile within four to eight hours. In 2 instances a third similar trial produced the same results.

Five patients developed dermatologic reactions during the course of treatment. Three of these were urticarial, 2 scarlatiniform. All 5 cleared completely within twenty-four hours of cessation of sulfaguanidine.

The most frequent finding was that of intermittent crystalluria, noted in 22 (26.5 per cent) of the 83 cases in which repeated urinalyses were done during the course of treatment. In only 3 cases was this finding associated with the febrile reaction. It was observed as early as the second day of sulfaguanidine therapy in 2 instances, on the third day in 4 others, and it persisted throughout the ten day course in 5 cases. Transient hematuria occurred in 4 instances, in 1 of which there was diminution of urinary output for a twenty-four hour period preceding the appearance of the crystals. In all other instances the crystalluria was attended by no other signs or symptoms referable to the genitourinary tract. The crystals were large and rectangular and were present in both alkaline and acid specimens.

One or more of the subjective symptoms headache, mild malaise, anorexia, occasional backache and nausea, in order of frequency, was complained of by approximately 20 per cent of the patients.

REPORT OF CASES

CASE 1.—A soldier aged 24 received a total of 21 Gm. of sulfaguanidine in forty-eight hours, at the end of which time he had a rise in temperature to 103 F. with chills, nausea and severe headache. The drug was discontinued, and within twenty-four hours the temperature had returned to normal and the subjective complaints disappeared. Two days later, following an additional 3.5 Gm. of sulfaguanidine, the fever returned, again subsiding on cessation of the drug. The blood count and urinalysis were normal at that time.

CASE 2.—A soldier aged 25, on the eighth day of treatment, at which time he had received a total of 84 Gm., developed a temperature of 102.8 F., slight chills and severe headache. The drug was discontinued, with a subsequent prompt fall in temperature to normal. Blood count and urinalysis were normal.

CASE 3.—A soldier aged 19 had received a total of 32 Gm. while hospitalized, with no reaction. Two weeks later a course of sulfaguanidine was begun on an outpatient status, and on the fourth day of treatment, at which time 35 more grams had been given, the patient developed fever of 102 F. and complained of severe headache. The blood count and urinalysis were normal. The drug was discontinued, the temperature returned to normal, and symptoms subsided within twenty-four hours.

CASE 4.—A soldier aged 22 received a total of 96 Gm. while hospitalized, with no reaction noted. Two weeks later, after receiving 28 more grams of sulfaguanidine in a three day period, the temperature rose to 101.8 F., with complaints of severe headache, nausea and chills. On cessation of therapy all signs and symptoms returned to normal. Blood count and urinalysis were normal.

CASE 5.—A soldier aged 28 received a total of 48 Gm. during hospitalization with no reactions noted. Two weeks later, after receiving 28 Gm. within three days, the temperature rose to 102.2 F., with complaint of headache. The drug was discontinued, and fever and headache disappeared within twenty-four hours. Blood count and urinalysis were normal.

CASE 6.—A soldier aged 24, after receiving 28 Gm. of sulfaguanidine in three days, developed fever of 102.4 F., chills, headache and nausea. The drug was discontinued. Prompt fall in temperature and disappearance of subjective complaints followed within twenty-four hours. Forty-eight hours later the patient was given 7 Gm. of sulfaguanidine, with return of fever and subjective symptoms. Recovery to normal again followed withdrawal of the drug. The blood count and urinalysis were normal.

CASE 7.—A soldier aged 26, on the third day of treatment following a total of 27 Gm., developed fever of 103.2 F., severe headache, backache, nausea, anorexia and chills. The drug

was discontinued, and all symptoms and fever disappeared within twenty-four hours. Two days later 3.5 Gm. of sulfaguanidine was given; fever of 102.4 F., headache and nausea returned. Recovery again followed withdrawal of the drug. Blood count and urinalysis were normal.

CASE 8.—A soldier aged 37, after receiving a total of 35 Gm. of sulfaguanidine in four days, developed fever of 101.4 F., chills and headache, all of which cleared up within twenty-four hours when the drug was stopped. Blood count and urinalysis were normal.

CASE 9.—A soldier aged 37, on the third day of treatment, after receiving 28 Gm. of sulfaguanidine, developed a fever of 102.6 F., malaise, anorexia and nausea. The drug was discontinued, with prompt return to normal within twenty-four hours. Blood count and urinalysis were normal.

CASE 10.—A soldier aged 23 had received a total of 100 Gm. of sulfaguanidine during hospitalization with no ill effects reported. Two weeks later, following administration of 42 more grams in four days, the patient developed a fever of 101.2 F., slight headache and malaise. The fever and other complaints disappeared within twenty-four hours when the drug was discontinued. Blood count and urinalysis were normal.

CASE 11.—A soldier aged 20 had received a total of 64 Gm. during hospitalization, with no ill effects reported. Two weeks later, after an additional 63 Gm. in six days, the patient developed a generalized scarlatiniform eruption of the trunk and extremities. The patient had had no previous skin eruptions. No associated subjective symptoms were present. The rash disappeared within forty-eight hours of withdrawal of the drug and did not recur. The blood count and urinalysis were normal.

CASE 12.—A soldier aged 24, after receiving 73.5 Gm. of sulfaguanidine, on the seventh day of treatment developed a temperature of 101.6 F., chills and malaise. Return to normal followed within twenty-four hours of withdrawal of the drug. Thirty-six hours later two additional doses, 7 Gm., elicited a temperature rise to 101.4 F. The drug was again discontinued, with a prompt return to normal. Except for moderate crystalluria on two occasions, blood counts and urinalyses were normal.

CASE 13.—A soldier aged 26 developed headache and malaise on the fourth day of treatment and slight chills on the eighth day. On the tenth day, at which time he had received a total of 101.5 Gm., he experienced severe headache, malaise, anorexia and fever of 103.8 F. All symptoms subsided and temperature returned to normal in less than twenty-four hours. Blood counts and urinalyses were normal.

CASE 14.—A soldier aged 27 had received a total of 30 Gm. while hospitalized, with no toxic reaction. Seven days later drug treatment was reinstituted. On the fifth day of treatment, at which time he had received 49 Gm., he developed a temperature of 101.8 F., which subsided within twenty-four hours. A day later 7 more grams was given, with a prompt rise in temperature to 100 F. The fever again subsided on discontinuance of the drug. Blood counts and urinalyses were normal.

CASE 15.—A soldier aged 27 had received 32 Gm. of sulfaguanidine during a previous period of hospitalization, with no toxic manifestations. Two weeks later further treatment was given, and, after receiving 73.5 Gm., on the seventh day of therapy, his temperature rose to 100.4 F., with pronounced malaise. On discontinuance of the drug, fever and discomfort ceased. After two days 17.5 more grams was given, with a resultant urticaria of the eyelids, lips, hands, back and legs, which subsided within twenty-four hours.

CASE 16.—A soldier aged 20, after receiving 63 Gm. of sulfaguanidine in six days, developed fever of 101.2 F. and severe backache. Moderately decreased urinary output had been noted in the preceding twenty-four hours. Urinalysis showed occasional red blood cells and moderate crystalluria.

All findings disappeared within a day following withdrawal of the drug. The blood counts were normal.

CASE 17.—A soldier aged 20 received a total of 96 Gm. during a previous period of hospitalization. At that time he had complained of malaise, anorexia and emesis on two occasions but developed no other symptoms referable to the medication. Eight days later sulfaguanidine was again started. After receiving only 10.5 Gm. he developed fever of 102.4 F. and severe malaise. Return to normal took place within eighteen hours of cessation of medication. An additional 7 grams two days later again caused a rise in temperature to 99.8 F. and a moderate urticaria of the chest and arms. Both fever and urticaria promptly subsided. A third rise in temperature to 100 F. followed administration of 7 Gm. of sulfaguanidine forty-eight hours later, with the usual return to normal after cessation of treatment. Urinalyses and blood counts were normal throughout.

CASE 18.—A soldier aged 22 developed crystalluria on the fourth day of therapy, at which time he had received 42 Gm. Moderate hematuria was noted on the seventh day of therapy, as well as persistent crystalluria. Blood counts were normal.

CASE 19.—A soldier aged 24 had received a total of 48 Gm. during previous hospitalization without toxic effects. Two weeks later he was again placed on sulfaguanidine, and, after receiving 84 Gm., on the eighth day of treatment developed an urticaria of the wrists and forehead, which disappeared on discontinuance of the drug. Blood counts and urinalyses were normal.

CASE 20.—A soldier aged 32 complained of severe headache, malaise and anorexia from the second day of therapy. In addition, crystalluria was noted at that time. All these findings persisted throughout the course of therapy, which was terminated on the ninth day because of a rise in temperature to 100 F. All complaints then disappeared promptly.

CASE 21.—A soldier aged 21 developed crystalluria on the eighth day of treatment, at which time he had received 77 Gm. The following day the presence of red blood cells in the urine in addition to the crystals necessitated cessation of therapy. The condition disappeared in forty-eight hours. The blood counts were normal throughout.

CASE 22.—A soldier aged 29 developed a scarlatiniform eruption of the trunk and extremities, crystalluria, moderate hematuria and temperature of 101.4 F. on the tenth day of treatment, at which time he had received a total of 98 Gm. of sulfaguanidine. The rash, fever and crystalluria disappeared within twenty-four hours; the hematuria persisted an additional day.

SUMMARY

1. Sulfaguanidine was given to 191 ambulatory carriers of bacillary dysentery in evident good health. Twenty-two (11.5 per cent) developed complications of sufficient severity to necessitate discontinuing the drug.

2. Febrile reactions occurred in 18 patients (9.4 per cent), dermatologic reactions in 5 (2.6 per cent) and hematuria in 4 (2.1 per cent).

3. Crystalluria was noted in 22 (26.5 per cent) of 83 cases in which repeated urinalyses were done. This finding, when it existed without concomitant complications, was not considered sufficient indication for discontinuing the drug.

4. The factor of increased fluid loss due to perspiration in the soldiers receiving the drug, as they were on a duty status in a tropical climate, is felt to be at least a contributing condition in development of reactions of the severity and frequency reported herein.

5. From these observations, it is evident that sulfaguanidine therapy is not without its dangers, and the same caution in administration should be exercised as with the other sulfonamides.

DIAGNOSIS OF LIVER ABSCESS
BY MEANS OF THOROTRAST
HEPATOSPLENOGRAPHY

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From now on we must expect a great increase of amebiasis in the United States as our soldiers and sailors return home from the various theaters of war. We must be alert to the possibility of this disease not only in cases of diarrhea but in cases of vague abdominal complaint and fever not readily explained, since many of our boys may be victims of chronic amebiasis or may act as carriers. Cognizance must be taken also of the fact that amebic liver abscess may not develop until years after the primary intestinal infection has become asymptomatic, as illustrated by some of my cases.

The diagnosis of liver abscess, either amebic or pyogenic, is often difficult. It should be suspected in every case of discomfort in the right upper quadrant of the abdomen with fever, either with or without enlargement of the liver. In some cases there may be fever and enlargement of the liver without pain. In many cases there is little or no jaundice. Chills are more common in the pyogenic form. The presence of a rounded protuberance of the liver is more frequent with the amebic form, but this manifestation may not be evident on physical examination, since the swelling may be above the costal margin.

There is no better way of making the diagnosis of either form of liver abscess than Thorotrast hepatosplenography, a procedure which I have employed for nearly thirteen years in several hundreds of cases. A follow-up study¹ of 286 patients so examined over the first ten year period of my use of this procedure revealed no evidence of harmful effects from the presence of thorium dioxide in the tissues in the amounts used. It was noted that liver abscess was one of the conditions in which the method was most valuable as a diagnostic procedure.

Thorotrast hepatosplenography was developed both by Oka and by Radt in 1929 and makes use of roentgenographic examination of the liver and spleen following the intravenous administration of a stabilized colloidal solution of thorium dioxide.²

When this material is introduced into the blood stream it is rapidly removed and engulfed by the cells of the reticuloendothelial system. Since the liver and spleen contain these cells in greatest concentration, these organs will receive the greatest amount of Thorotrast. By virtue of its high molecular weight, thorium dioxide is radiopaque and thus serves as a contrast medium. In a Thorotrast hepatosplenogram normal liver tissue appears of a homogeneous density about equal to that of the vertebrae, the spleen about the same density as the ribs. Since a liver abscess is a circumscribed area of pus containing necrotic hepatic tissue and is devoid of active reticuloendothelial cells, it will contain none of the Thorotrast and will be of lesser density than surrounding normal liver tissue on the x-ray film. In this manner liver abscess, especially the solitary amebic variety, is easily demonstrated and precisely located. The only lesions that need be differentiated are neo-

plasm and cyst. Metastatic carcinoma appears as areas of lesser opacity with clearcut margins and often with a halo of condensed liver tissue. Solitary tumors are rare but present roentgenographic features similar to those of metastatic growths. The same is true of echinococcic and other rare cysts. The outline of a solitary liver abscess may or may not be rather sharp but in any case does not have a halo of increased density. Multiple pyemic abscesses are smaller and present a fuzzy outline that blends with the adjacent liver parenchyma.

The method now employed is to inject slowly intravenously 75 cc. of Thorotrast (adult dose) and to make the x-ray exposures several hours later. Studies of the rate of deposition of Thorotrast³ have shown that most of it is removed from the blood stream during the first fifteen minutes following injection and that after two hours the films made are as good as at any time thereafter.

In making the injection it is important to avoid infiltration of the subcutaneous tissue, since Thorotrast remains there and in time produces unsightly hard nodules which may become painful and require excision. These foreign body tumors do not become malignant in man.⁴ To simplify injection the Thorotrast may be diluted with several hundred cubic centimeters of isotonic solution of sodium chloride and be given by the gravity method. In this way one can ascertain that the needle is entirely within the vein before the Thorotrast is added to the flask. Mild reactions are not uncommon when the whole 75 cc. is injected at one time. They are so unimportant, however, that the old method of injecting 25 cc. on each of three successive days was abandoned in order to save time. Good films are usually obtainable with the patient placed in the prone position by means of the following technic: 300 milliamperes, kilovolt peak 58, distance 40 inches, time $\frac{1}{4}$ to $\frac{1}{2}$ second, depending on the size of the patient.

Five cases of probable amebic liver abscess and 2 cases of pyogenic abscesses will be described briefly. Four of the solitary abscesses have been reported previously,⁵ and these will be reviewed in less detail.

AMEBIC LIVER ABSCESS

CASE 1.—A white man aged 38 entered Georgetown University Hospital on July 24, 1936 stating that he had had severe pain in the right upper quadrant of the abdomen intermittently and that for six weeks he had had fever. The pain was sharp and stabbing in the hepatic area, and there was a dull constant ache in the right posterior lumbar region. Intermittent vomiting had occurred, and a loss of 40 pounds (18 Kg.) had resulted. There had been a chill the day before admission. Bowel function had not been abnormal. The patient appeared seriously ill but was not jaundiced. The temperature was 101 F. and the pulse rate 100. There was hepatomegaly with pronounced tenderness over the right lobe, the edge of which was rounded and extended 6 cm. below the right costal margin. A definite hypochromic anemia with a high granulocytic leukocytosis was found. Repeated stool examinations were normal. A moderately severe, irregular fever persisted, ranging from 98 to 103 F. Troublesome bronchitis developed. A hepatosplenogram revealed an area of decreased density in the lower portion of the right lobe of the liver indicating the presence of an abscess. Drainage of thick, reddish brown pus was instituted, and the patient was

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1. Yater, W. M., and Coe, F. O.: Ten Years' Experience with Thorotrast Hepatosplenography, *Ann. Int. Med.* 18: 350-366, 1943.

2. Manufactured by the Heyden Chemical Corporation of New York under the name Thorotrast.

3. Yater, W. M.: Rate of Deposition of Thorotrast in the Human Liver and Spleen, *Am. J. Roentgenol.* 33: 447-449, 1937.

4. Yater, W. M., and Whitmore, E. R.: Histopathologic Study of Tissues of 65 Patients Injected with Thorium Dioxide Sol for Hepatosplenography, *Am. J. M. Sc.* 195: 198-205, 1938.

5. Meredith, R. H.; Cooper, L. F., and Yater, W. M.: Thorotrast Hepatosplenography as a Diagnostic Aid in Solitary Liver Abscess: Report of Four Cases, *M. Ann. District of Columbia* 11: 382-397, 1942.

discharged as cured on the fortieth day after operation. Although amebas could not be found, a course of emetine hydrochloride was given.

CASE 2.—A white man aged 36, who entered Georgetown University Hospital on Feb. 22, 1938, had been ill for nine weeks with nausea, vomiting, diarrhea and fever. He was seriously ill, emaciated and cachectic but not jaundiced. The right lobe of the liver seemed to be considerably enlarged, and there was dullness posteriorly above the right diaphragmatic area. The leukocyte count was normal, but there was severe anemia. Repeated stool examinations were negative. A moderate, irregular fever continued, with remissions of several days at a time. The diarrhea was replaced by constipation with abdominal distention. The first hepatosplenogram was unsatisfactory but showed the liver to be greatly enlarged. Aspiration of the liver was productive of 100 cc. of brownish fluid. An additional 25 cc. of Thorotrast (making a total of 100 cc.) was injected, and the hepatosplenogram revealed a large area of decreased density involving the upper two thirds of the liver. The next day paracentesis of this area resulted in the withdrawal of 1,750 cc. of purulent fluid, which at first was dark brown, with clumps of necrotic debris and later was light yellow and thick. Two days later the liver was exposed surgically and 3 liters of pus was evacuated through an aspirator. Four days later 1,200 cc. of purulent fluid was aspirated from the right pleural cavity, and cultures revealed *Staphylococcus aureus*. The same day the patient died. Amebas had not been found, but the case was probably one of amebiasis with complicating staphylococcal empyema.

CASE 3.—A white man aged 41, who had resided in the Philippines from 1925 to 1931 and during that time had had an illness of several weeks' duration characterized by fever and diarrhea, three months before admission to Georgetown University Hospital on Oct. 23, 1941 had developed an intermittent dull, aching pain in the right upper quadrant of the abdomen and in the lower half of the right side of the chest, associated with a low grade afternoon fever, anorexia and a loss of 67 pounds (30 Kg.). The bowels were constipated. He was greatly debilitated on admission, and his temperature was 102 F. and his pulse rate 90 per minute. The base of the right lung was dull to percussion and the breath sounds were absent.



Fig. 1 (case 3).—Large amebic abscess in middle of right lobe of liver before operation.

It appeared that the right hemidiaphragm was elevated. The liver was not palpable. There was moderately severe anemia, and the leukocytes numbered 13,500, with 87 per cent neutrophilic granulocytes. Repeated stool examinations were negative. The temperature continued to be elevated with afternoon rises to 101 to 102 F. Hepatosplenograms made on November 12 revealed an area of decreased density, 15 cm. in diameter, occupying the middle of the liver (fig. 1) which, together with

the clinical findings, definitely established the diagnosis of solitary liver abscess. The abscess was drained, and a course of emetine hydrochloride was given, followed by a course of chiniofon. On the fourth day postoperative transient diarrhea developed, and *Endamoeba histolytica* was demonstrated in the stools. The "anchovy sauce" pus from the hepatic abscess



Fig. 2 (case 4).—Large abscess in upper half of right lobe before rupture into right lung.

did not show amebas, as is usual. Steady improvement followed the second stage of the operation, and the patient was discharged on December 13 as cured.

CASE 4.—Three months before admission to Georgetown University Hospital on Feb. 26, 1942 a white man aged 47, residing in Florida, had had an illness characterized by chills, fever, sweating and diarrhea. He was treated with sulfathiazole, and after ten days his temperature became normal and the diarrhea subsided for two weeks but then recurred. A weight loss of 30 pounds (13.6 Kg.) resulted. There was no abdominal pain or jaundice. Findings on admission included the presence of a large, hard, immovable mass about 5 cm. in diameter on the posterior wall of the left hemithorax in the region of the seventh rib, evidence of elevation of the right hemidiaphragm with limited motion, and some tenderness of the edge of the liver, which was palpable 2 cm. below the right costal margin. There was moderate anemia and a leukocytosis of 19,200 with 73 per cent neutrophilic granulocytes. Repeated stool examinations were negative. A remittent fever ranging up to 103 F. persisted. Hepatosplenograms showed a slightly enlarged liver with elevation of the right hemidiaphragm, and a large area of decreased density in the upper half of the right lobe of the liver of rounded contour (fig. 2). The swelling of the left hemithorax was shown to be an osteochondroma. Signs of fluid in the right pleural cavity appeared, and during the night preceding planned operation for liver abscess the patient began to expectorate a large amount of thick, brick red, foul smelling fluid resembling anchovy sauce (fig. 3). Operation was canceled, but aspiration of 400 cc. of similar pus was aspirated from the liver through a cannula. Amebas were not found in the pus. After a week of coughing the temperature became normal and improvement rapid. The patient was discharged as cured on March 26. During hospitalization he received a course of emetine hydrochloride followed by a course of chiniofon.

CASE 5.—J. H. R., a white man aged 39, entered Gallinger Municipal Hospital on Sept. 8, 1943 after two weeks of productive cough and morning vomiting and three days of fever and pain in the right upper quadrant of the abdomen. He

had observed a swelling the size of a plum beneath the right costal margin. This swelling was noted on admission to the surgical service, but on the second hospital day both swelling and pain disappeared. Bowel function and temperature were normal. He remained in the surgical service for two weeks. Roentgenographic examinations of the chest, gallbladder and gastrointestinal tract were normal. Four days after discharge the pain and swelling recurred, and after a week of suffering he was readmitted, this time to the medical service. The patient had been raised in the mountains of West Virginia. The only illnesses he remembered were an attack of "intestinal flu" at 12 and mumps at 15.

The patient was poorly nourished and pale, with scattered, coarse bronchial rales and a tender mass the size of a lemon just below the right costal margin. There was some muscle spasm and warmth and erythema overlying the mass. A fever ranging between 100 and 101 F. was present, and the leukocyte count was 16,200, with a normal differential count. A flat x-ray film of the abdomen, films of the spine and pyelograms were normal. A hepatosplenogram showed a rounded opacity measuring 5 by 10 cm. in the lower portion of the right lobe of the liver (fig. 4), which was interpreted as a solitary liver



Fig. 3 (case 4).—Hepatosplenogram made the day after rupture of abscess into right lung.

abscess. On the same day both cystic and motile forms of *Entamoeba histolytica* were found in the stools.

Because the pain and tenderness were becoming rapidly more severe and because the hepatosplenogram showed a very thin rim of liver tissue under the lower margin of the defect in the liver shadow, it was felt that there was grave danger of rupture of the abscess into the peritoneal cavity. Consequently, immediate aspiration was performed through the chest wall below the pleura reflection with the needle pointing downward, and 50 cc. of purplish red, necrotic, odorless pus was easily aspirated. Three grains (0.2 Gm.) of emetine hydrochloride was instilled into the abscess cavity and along the track of the needle. The following day surgical drainage was performed through the same approach. On the same day Dr. John Bozicevich of the National Institute of Health reported that amebic complement fixation tests of the blood were the most strongly positive in his experience.

A course of emetine hydrochloride was followed after a week's rest by a course of carbarsone, which after another week's rest was followed by a course of iodoform. The blood complement fixation tests gradually became negative. Recheck hepatosplenograms showed progressive decrease in the size of

the abscess cavity with almost complete obliteration on the thirty-third postoperative day (fig. 5), when the drainage tube was removed. At the time of discharge on Oct. 21, 1943 the patient had gained 15 pounds (6.8 Kg.) and stated that he had never felt better in his life. At no time during his illness had there been significant disturbance of bowel function.

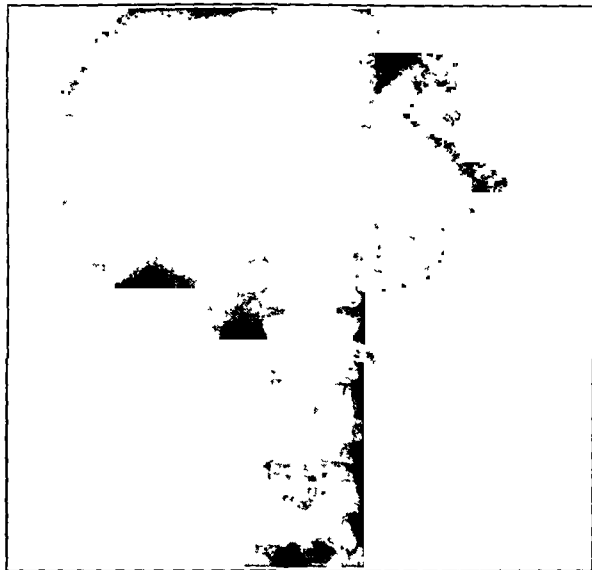


Fig. 4 (case 5).—Amebic abscess in lower portion of right lobe of liver before drainage.

PYOGENIC LIVER ABSCESSSES

CASE 6.—H. B., a white man aged 24, had pain in the region of the right costal margin for five weeks before admission to the hospital on Dec. 16, 1942 accompanied by night sweats and a series of three chills. The pain was increased by respiration. Vomiting had occurred twice. The patient had had

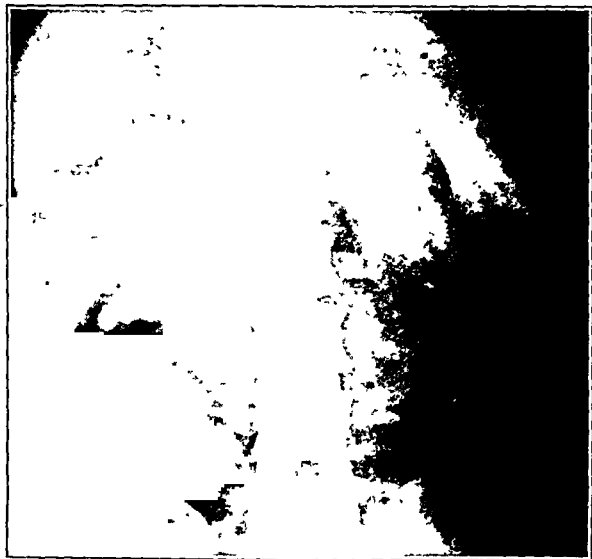


Fig. 5 (case 5).—Hepatosplenogram one month after insertion of drainage tube in abscess, which has filled in, leaving evidence only of track of drainage tube.

chronic bronchitis since childhood. Physical examination showed nothing of significance except a suggestion of enlargement of the right lobe of the liver. The temperature ranged irregularly between normal and 103.8 F., with the pulse rate elevated proportionately. A rigor occurred every few days. Roentgenograms of the chest were negative. The white blood cell count was 30,300, with 86 per cent segmented neutrophils, 3 per cent

band forms and 1 juvenile leukocyte. About three weeks after admission surgical exploration of the liver revealed a firm raised area on the margin of the moderately enlarged right lobe covered by a few filmy adhesions. Aspiration was unproductive, but a biopsy revealed necrotic liver tissue infiltrated with polymorphonuclear leukocytes. A culture showed nonhemolytic streptococci and *Staphylococcus aureus*. Drainage of the hepatic lesion was fruitless and no improvement resulted. A hepatosplenogram showed a large, ill defined area in the upper portion of the right lobe of the liver which was less dense than the remainder of the liver. Another film made three weeks later showed this area more distinctly, and a third made two weeks later on was still more definite. Two weeks after the first operation the liver was again explored surgically, and several punctures were made deeply into the liver without result. However, a rubber tube was placed in one of these deep holes. From this there was a slight drainage of a watery material, and the patient seemed to improve. His appetite became good, the temperature elevation was not so great, and the white blood cell count dropped to 17,300. Three and a half weeks after the operation the patient was allowed to return home, no further chills having occurred. His condition at home remained much as it had been in the hospital, but in the early part of March chills recurred and a more toxic state set in. On March 13 the patient was brought back to the hospital, and the next day he suddenly coughed and became very dyspneic, cyanotic and apprehensive. An hour later he died.

Necropsy revealed the right lobe of the liver to be greatly enlarged and adherent anteriorly to the abdominal wall with fibrinous adhesions. In its center was a large abscess about 10 cm. in diameter filled with thick pus. A capsule was apparently forming. It appeared that one of the exploring punctures had barely missed entering the abscess. There was a right fibrinous pleuritis with an early abscess in the right lower lobe just above the diaphragm. The appendix was swollen and covered by a purulent exudate. The spleen was large and soft. Sections of the liver showed a necrotic abscess wall containing polymorphonuclear leukocytes, monocytes and fibrin. The wall of the appendix was edematous and engorged, and it contained many lymphocytes.

CASE 7.—W. R. F., a white man aged 21, entered Georgetown University Hospital on April 6, 1943 stating that since the previous morning he had had a severe, continuous pain in the region of the umbilicus. Anorexia, nausea and vomiting followed soon after. One large bowel movement had been succeeded by three loose ones containing neither mucus nor blood. The past history was irrelevant. There was abdominal tenderness but no rigidity, and rectal examination revealed tenderness on the right side at the tip of the finger. The temperature was of septic type with large remissions, from 101 to 107 F., with the pulse rate varying correspondingly. On April 9 administration of sulfadiazine was begun; two courses were given. On April 11 the blood culture was reported positive for a hemolytic streptococcus and on April 16 for an anaerobic streptococcus.

During the first week the patient complained only of a headache; the abdominal pain disappeared and was replaced by some soreness only. Symptoms of a severe bronchitis existed for a while. On April 11 jaundice of moderate degree appeared. Between April 16 and May 4 chills and sweats occurred daily. Nausea and vomiting were always troublesome. The spleen became palpable and gradually enlarged until it reached to the umbilicus. In May the liver became palpable but was never greatly enlarged. On May 9 ascites was noted and persisted. Occasional bouts of diarrhea were reported.

A hepatosplenogram made on April 26 showed nothing abnormal. However, because the history and clinical features were suggestive of suppurative pylephlebitis with liver abscesses a film was made almost weekly. One on May 11 revealed an area 5 by 7 cm. in the middle of the right lobe of the liver suggestive of an abscess. Another on May 27 showed several areas in the right lobe of the moderately enlarged liver very suggestive of multiple abscesses.

On May 21 a course of penicillin therapy was started and a total of 150,000 units given without appreciable change.

On May 28 laparotomy was performed, and an abscess was located on the under surface of the liver from which thin pus was aspirated. Although a drainage tube was inserted, this did not result in any improvement or drainage of any appreciable amount. On June 14 another hepatosplenogram still showed evidence of a group of abscesses in the liver.

The patient's course continued downhill, with various complications. He was sent home on July 1 and died there about a month later.

COMMENT

In only 2 of the first 5 cases were amebas demonstrated. However, there was no reasonable doubt that the other 3 cases were examples of amebic abscess, since the type of pus and the clinical features were consistent. It is well known that amebas cannot be recovered from the pus unless it is scraped from the wall of the abscess cavity, a procedure that from a practical standpoint is unnecessary.

Case 6 was one of pyogenic liver abscess that appeared to be solitary, but it is probable that the abscess was the result of coalescence of a number of smaller abscesses. The origin was apparently appendicitis that was unrecognized clinically. Case 7 was probably one of suppurative pylephlebitis with multiple liver abscesses from acute appendicitis that was not recognized.

This series of cases demonstrates the value of hepatosplenography in the diagnosis of both amebic and pyogenic abscesses of the liver, the former in cases in which amebiasis had not been diagnosed previously. In cases of amebic abscess the hepatosplenogram usually shows a definite, single, large abscess cavity on the first examination, whereas in cases of pyogenic abscesses repeated films made at intervals may be necessary. The clinical features of the two forms are different.

Alertness to the possibility of amebic liver abscess will be increasingly necessary as the war brings back many men from the tropics. Many of these veterans will appear to be well for varying intervals prior to the onset of symptoms caused by the abscess.

Progress in Science During the Eighteenth Century.—

Equally original with the philosophers were the scientists of this period. Indeed, astronomy, mathematics, physics, chemistry, botany and physiology were enriched by a number of substantial discoveries. Newton, whose law of gravitation was expressed in a simple mathematical formula, stood supreme at the beginning of the century. His contemporary the German philosopher-mathematician Gottfried Wilhelm von Leibnitz (1646-1716) evolved differential calculus. Famous also were the astronomer-mathematician Pierre-Simon Laplace (1749-1827), one of the first to study capillary action, Leonhard Euler (1707-1783) and Joseph-Louis Lagrange (1737-1813). The German astronomer-physicist Daniel Gabriel Fahrenheit (1686-1736) prepared a number of meteorological instruments and the thermometer bearing his name. A centigrade thermometer was described by the Swede Anders Celsius (1701-1744) before the Swedish Academy in 1742. Thermodynamics was greatly improved by the epochal contributions of James Watt (1736-1819), who invented the modern condensing steam engine (1769), which was a marked improvement over the clumsy apparatus of Thomas Newcomen (1663-1729). Botany obtained the status of a science by the contributions of the Swedish physician Carl von Linné (1707-1778), who based his classification of plants on characteristics of stamens and pistils. This system was expanded by Michael Adamson (1727-1800) and by Antoine-Laurent de Jussieu (1748-1836). Georges-Louis Cléve de Buffon (1707-1788) contributed a vast compilation on natural history in a popular and intelligent manner, which at the time of its appearance produced a tremendous sensation.—Ricci, James C.: *The Genealogy of Gynaecology*, Philadelphia, Blakiston Company, 1943.

RED BLOOD CELL PASTE IN TREATMENT OF ULCERS

AND CHRONICALLY INFECTED WOUNDS

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It has been one of the functions of the Blood and Plasma Bank of the Naval Hospital, Philadelphia, to utilize the red blood cells which are an important by-product of plasma production and which were formerly discarded. These cells have been administered with uniform success, as red cell infusions, to 663 patients suffering from anemia. A report of our results previously has appeared in the literature.¹

Moorhead and Unger² successfully used red blood cells, which were allowed to age for approximately twenty days, as a local agent in the treatment of such wounds as an open joint and an old infected burn. They suggested that this mode of therapy be given a more extensive clinical trial for better evaluation.

We applied fresh human red blood cells to a decubitus ulcer of long standing, but the problem of making these cells adhere to the wound presented itself. A sterile paste composed of concentrated red blood cells, tragacanth and hexylresorcinol was formulated. Because of the difficulty of maintaining adequate control measures in the application of this paste to open wounds, it was first decided to treat indolent ulcers which had failed to heal under the usual methods of treatment. Many of these ulcers rapidly healed. Other types of wounds—burns, deep granulating areas and the like—were thus treated. The most gratifying results were obtained in the type of lesion which fails to maintain the usual process of repair because of circulatory disorder. When the paste was applied to a dry, superficial wound it formed an impervious coating which finally became adherent to the wound, but when applied in larger quantities to deeper granulating wounds it appeared to be absorbed to some degree by the involved tissues.

PREPARATION OF THE RED CELL PASTE

The red blood cells which remain after the plasma has been aspirated (by means of a closed aseptic technique) are used for the preparation of the red blood cell paste. After the plasma is removed, the aspirating needle is plunged to the bottom of the red blood cell pack and 250 cc. of fresh type O cells are drawn over by means of a vacuum into a sterile 300 cc. dispensing bottle.

Seventy-five cc. of 1:1,000 hexylresorcinol solution is placed in a sterile pyrex glass beaker. Powdered tragacanth (2.5 Gm.) is dusted on the surface, a sterile covering applied and the mixture kept in the beaker for several hours, until a gelatinous mass forms. This is sterilized by heating in a water bath for twenty minutes at 100 C. On cooling it is removed from the

beaker with a sterile spatula and 25 Gm. introduced into the 300 cc. bottle containing 250 cc. of the sterile red cell concentrate. After thorough mixing by agitation, the paste is stored at from 2 to 5 C. while not being used. An analysis of the composition of the paste reveals 8 to 10 million erythrocytes and 2 to 3 thousand leukocytes per cubic millimeter. The hemoglobin content varies from 28 to 31 Gm. per hundred cubic centimeters.

METHOD OF APPLICATION

The wound is cleansed with isotonic solution of sodium chloride and dry gauze. The paste is then applied with sterile cotton applicators. Superficial wounds and burns are treated by applying a thin film

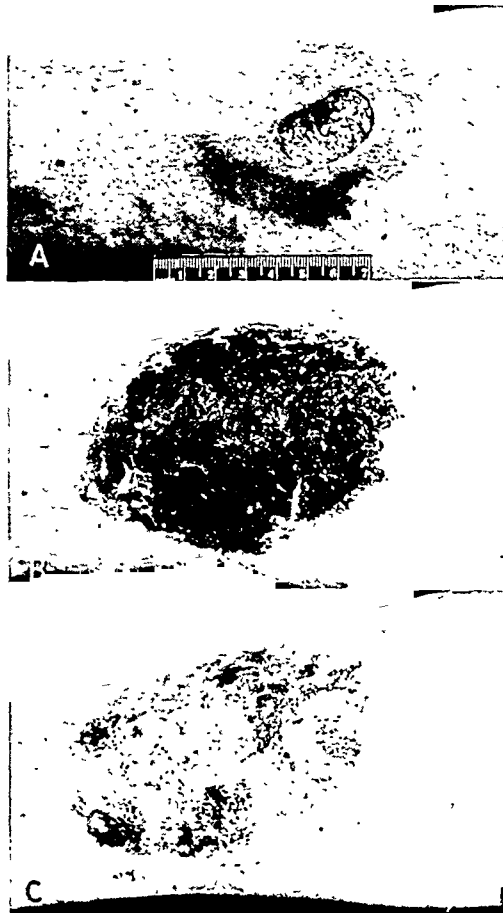


Fig. 1.—Varicose ulcer, right leg, two years' duration: A, Dec. 20, 1943, before treatment. B, Feb. 1, 1944, after forty-five applications of red blood cell paste. The ulcerated area has been filled in with granulation tissue, and epithelization has taken place beneath the crust. C, February 7, one week later; crust removed. Note that the ulcer has healed. There are several small areas where crust is adherent.

of paste over the area, which is allowed to dry before being covered with a sterile dry dressing. If infection develops, the crust is removed, the wound cleansed lightly with isotonic solution of sodium chloride and a second application of the paste applied. A sterile scab soon develops, under which epithelization takes place. In deep granulating wounds the paste is applied freely and in relatively large quantities, after which the wound is covered with a sterile dry dressing. When the wound is redressed, it is noted that a rather large quantity of the paste is absorbed by the affected tissues. The discharge decreases and the granulations take on

William R. Zeglin, Ph.M. 1/c formulated the matrix used in incorporating red cells into a paste.

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a healthy appearance. After the granulations grow to the surface of the wound, a crust forms beneath which epithelium extends. The wounds are dressed either once or twice daily, depending on their condition and progress.

methods of treatment. The Kahn test was found to be negative in all of them.

In the 10 cases of varicose ulcers treated by this method, only 1 failed to heal. The duration of these ulcers was from six weeks to three years, and they

Results of Treatment of Open Wounds with Red Blood Cell Paste

Case	Type of Lesion	Duration	Previous Treatment	No. of Applications	Results
P. A.	Varicose ulcer, right leg, medial surface, 4.75 x 3 cm.	10 months (recurrent 16 years)	Hospitalization with bed rest; various ointments; Unna boots; venous ligation below knee	12	Excellent; complete epithelialization in two weeks
B. O.	Varicose ulcer, right leg, medial surface, 2 x 3 cm.	3 years	Hospitalization; sulfathiazole ointment (produced generalized maculopapular rash)	21	Excellent; complete healing in four weeks
I. V.	Varicose ulcer, right leg, lower anterior tibial region, 4 x 2.5 cm	6 weeks	Antiseptic ointments; bed rest	11	Excellent; complete healing in twenty-six days
G. N.	Varicose ulcer, left leg, lower anterior tibial region, 4 x 2.5 cm.	3 months	High saphenous ligation; bed rest; antiseptic ointments	20	Very good; epithelialization under crust in six weeks
R. B.	Varicose ulcers, multiple, both legs	3 years	Hospitalization; sulfathiazole ointment; Unna boots; multiple injections of sclerosing agents high venous ligation	21	Very good; complete healing; discharged six weeks after onset of treatment
R. D.	Varicose ulcer, left leg, posterior to internal malleolus, 2.5 x 2 cm.	5 months (recurrent 2 years)	Hospitalization; bed rest; antiseptic ointments	27	Very good; complete healing in six weeks
R. S.	Varicose ulcer, left leg, inferior to external malleolus, 2 x 2.25 cm.	7 weeks	Sulfathiazole powder (produced generalized dermatitis)	50	Very good; complete healing in seven weeks
G. L.	Varicose ulcer, right leg, lower medial surface, 3.5 x 2.5 cm.	2 years	Hospitalization; bed rest; various ointments; multiple injections of sclerosing agents	45	Very good; complete healing in two months (fig. 1)
M. S.	Varicose ulcer, left leg, lower medial surface, 3 x 2.5 cm.	6 weeks	Gentian violet solution	35	Fair; complete healing in ten weeks
T. M.	Varicose ulcer, left leg, lower lateral surface, 3 x 1.5 cm.	4 months (recurrent 11 years)	Ointments; multiple injections of sclerosing solutions	17	Poor; failed to respond to treatment
J. B.	Ischemic ulcers (3), left leg	1 year	Hospitalization; bed rest; various ointments	40	Very good; patient discharged in eight weeks
H. H.	Ischemic ulcers (2), left leg	2 months	Bed rest; vitamin D ointment	5	Excellent; completely healed in two weeks
A. S.	Decubitus ulcer, sacral area	3 months	Antiseptics; sulfathiazole ointment; heat applications	28	Very good; definite progressive improvement (patient died of pulmonary embolus)
J. B.	Decubitus ulcer, sacral area, 8 x 6.75 cm. (secondary to transection of cord with complete paraplegia)	8 months	Elimination of pressure in this region; sulfathiazole ointment; cod liver oil ointment; heat applications	140	Very good; completely healed (fig. 2)
S. P.	Decubitus ulcers, both buttocks, multiple, extensive (secondary to transection of cord with complete paraplegia)	1 year	Hospitalization; heat; elimination of pressure; routine treatment	41	Poor; did not respond to treatment
W. K.	Aseptic necrosis, distal phalanx, first digit, right foot (thromboangiitis obliterans)	10 months	Bilateral sympathectomy; curettage of necrotic area	3	Excellent; wound healed in eighteen days (fig. 3)
J. S.	Burns, old, 2d and 3d degree, infected, both forearms and hands	4 weeks	Petrolatum gauze; sulfanilamide powder; wet dressings of 0.25 per cent acetic acid	20	Excellent; complete epithelialization in three weeks
A. H.	Burns, old, 2d and 3d degree, infected, right anterior and posterior chest	4 weeks	Petrolatum gauze; sulfanilamide powder; normal saline compresses; split thickness skin grafts, some of which sloughed off	28	Good; progressive improvement
G. W.	Ulcer, extensive, of penis, 2.5 x 0.25 cm.; dark field negative, Frei negative, biopsy negative for carcinoma and syphilis	3 weeks	Bland antiseptics	4	Excellent; complete healing in ten days
G. C.	Amputation stump, left mid-thigh	6 weeks	Azochloramide dressings	25	Good; wound filled in with granulation tissue; epithelialization took place with exception of small area, where small split thickness graft was applied
C. H.	Ulceration, right foot, following frostbite gangrene	2 weeks	Sterile dry dressings; petrolatum gauze	7	Good; healed under crust
J. S.	Extensive crush wound, right shoulder	2 months	Petrolatum gauze; primary skin graft; sulfathiazole ointment	75	Very good; completely healed (fig. 5)
L. P.	Open granulating wound	6 weeks	Alcohol dressings; sulfathiazole powder	10	Excellent; complete healing in three weeks
C. P.	Extensive granulating wound, tibial surface, right leg, 12.5 x 7.5 cm.	4 weeks	Antiseptic dressings; split thickness graft which sloughed off	15	Very good; complete epithelialization

RESULTS OF TREATMENT

During the past fourteen months, 66 patients have been beneficially treated with human red blood cell paste and dried red blood cells. Four cases did not respond to this treatment.

The accompanying table shows the data obtained from a careful study of 24 patients treated by this method, with various lesions, such as indolent ulcers, old infected burns and extensive granulating wounds which have failed to respond favorably to the usual

varied in size from 2 by 1 cm. to 4.75 by 3 cm. Pain was quickly relieved, many patients obtaining relief after the second application of the paste. Dried red blood cells were used in other cases not included in this series, but the relief of pain was not constant. Some patients complained of a burning sensation after the lyophilized cells were applied. The inflammatory reaction which usually surrounds the varicose ulcer gradually disappeared, the granulations at the base became brighter and more healthy in appearance, and

the discharge rapidly subsided (fig. 1). Epithelization took place under a crust. When a discharge accumulated beneath the crust, the portion of the crust over this area was removed, the wound cleansed with sterile isotonic solution of sodium chloride and the paste reapplied. A thin, watery discharge may frequently appear and must be differentiated from the thick purulent discharge which, of course, is evidence of pyogenic infection.

It must be emphasized that this method is only a means to promote local healing, and other procedures, such as venous ligation and injection of sclerosing agents, should be performed when indicated.

Two cases of refractory ischemic ulcers healed under this form of treatment.

G. B. had three ulcers of the left leg which necessitated his discharge from the service. He had been hospitalized for this condition, and all the usual forms of therapy had been

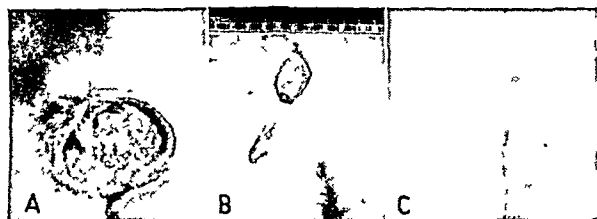


Fig 2—Decubitus ulcer over sacral area in case of complete paraplegia. A, Sept 22, 1943, before application of red cell paste (note depth). B, Jan 18, 1944, after 118 applications. Area has been filled in with granulation tissues and epithelization taking place. C, April 5, area completely healed after 140 applications.



Fig 3—Cavity produced by curettement of necrotic area in case of thromboangiitis obliterans. A, Nov 18, 1943, before application of red blood cell paste. B, November 21, after third (last) application. C, December 7, twenty days after onset of treatment. Granulation tissue has filled in cavity, and epithelization has taken place in area surrounding nail bed.

applied with unsatisfactory results. These ulcers, of one year's duration, healed after forty applications of red blood cell paste, and the patient was discharged eight weeks after onset of treatment.

The paste was applied in 3 cases of decubitus ulcers which had shown no sign of progress with other methods of therapy.

J. B. had a large decubitus ulcer of eight months' duration over the sacral area, secondary to a transection of the cord caused by a gunshot wound. This type of ulcer is notoriously difficult to heal and in many cases incurable. He had previously been treated with heat, cod liver oil and sulfathiazole ointments, but progress in the healing of the lesion had not occurred. After 140 daily local applications of this paste the wound showed slow but progressive improvement, and at the present time the area is completely healed (fig. 2).

Another patient, S. P., with complete paraplegia (eighteen years' duration) and multiple extensive decubitus ulcers has failed to show any improvement with this method or any other mode of therapy.

In a case of thromboangiitis obliterans the paste was applied to a cavity which had been produced by the curettement of a necrotic area of the distal phalanx,

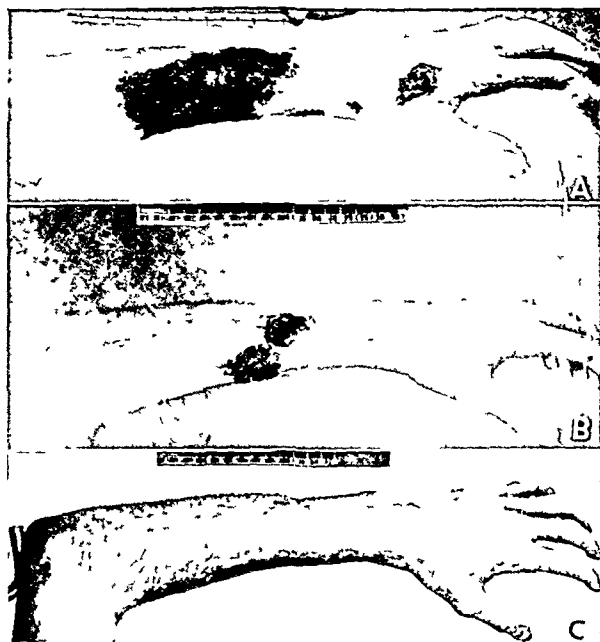


Fig 4—Second and third degree burns of forearm and hand. A, Oct 30, 1943, after third application of red cell paste (note crust which has formed). B, November 12, after fifteenth application of paste (epithelization is taking place beneath crust). C, after twenty five days from onset of treatment. The wound is completely healed.



Fig 5—Crush wound of right shoulder. A, before application of red blood cell paste. B, Oct 14, 1943, after seven applications. C, October 19, after twelve applications. D, after seventy five applications (wound completely healed).

first digit, right foot (fig. 3). This patient complained of severe pain which was relieved after the first application. The red blood cell paste apparently acted as

a coagulum in which granulation tissue formed. Epithelization took place under a fine crust formed by the red cell paste. This area showed complete healing in eighteen days.

Two cases of old infected burns have been treated.

J. S. suffered second and third degree burns of both forearms and hands which were treated for four weeks with petrolatum gauze, sulfanilamide powder and wet applications of 0.25 per cent acetic acid. It was planned to graft skin on the area over the dorsal surface of the left forearm after the infection subsided. However, a trial of red blood cell paste was instituted with daily applications to the raw surfaces of the wound (fig. 4). The central portion of the crust which had formed was removed frequently to allow the escape of pus, and another coat of red blood cell paste was reapplied. The discharge subsided and the burned area rapidly healed, complete epithelization taking place in three weeks. The results in this case were dramatic.

The other cases treated were open lesions of traumatic wounds with loss of substance in which the circulation was not impaired but healing was not progressing favorably (fig. 5). These cases healed satisfactorily and quickly with the red cell paste.

COMMENT

The mode of action of the red blood cell paste is undetermined. The most plausible theory is that required nutritional elements or proteins are supplied to tissue which may be deficient in these substances because of inadequate circulation. The red blood cells appear to be absorbed to a certain degree by the tissues until the granulations reach the surface and a crust forms. This crust of red blood cells apparently serves the function of protection, a source of nourishment and as a scaffolding for the support of the connective tissue. The new epithelium extends over the surface under the crust, and when the latter drops off the surface is completely covered. The red blood cells appear to stimulate the growth of granulation tissue and then act as a medium for the growth of epithelial cells over the granulating surface. This is important, since the most frequent problem in connection with an extensive granulating wound is to get the epithelium to grow over the surface.

Naide³ has successfully utilized autogenous whole blood in the treatment of ulcers and has obtained more favorable results with the use of concentrated plasma. Seldon and Young⁴ have applied dried red blood cells to open wounds with good results. In a similar manner we have used lyophilized red blood cells on a number of ulcers and granulating wounds but discontinued their routine use because severe burning pain was frequently produced at the site of the wound. However, the red blood cell paste definitely tended to relieve rather than produce pain. The powdered red cells have certain particular advantages in that they form a stable product which can be preserved indefinitely under all conditions of temperature without refrigeration, and their use is more valuable in wounds with a profuse discharge.

SUMMARY AND CONCLUSIONS

1. The method of preparation and use of human red blood cell paste for topical application that has been presented is not a panacea for chronically infected wounds but may be successfully employed in selected cases in which the slow healing is the result of local

circulatory impairment. In our group of cases it was in this type of wound that the best results were obtained. This method is not indicated in tuberculous or syphilitic ulcers.

2. Sixty-six patients with open wounds have been successfully treated with red blood cell paste and powdered red blood cells. Four cases failed to improve under this method of therapy.

3. The data obtained from a careful study of the use of red blood cell paste in 24 patients with indolent ulcers, old infected burns and extensive granulating wounds was tabulated.

4. Fifteen indolent ulcers which had been found resistant to other methods of therapy were treated with the local application of red blood cell paste. Nine of ten varicose ulcers were healed and only one failed to improve. Two cases with ischemic ulcers healed. One case (complete paraplegia) with an extensive decubitus ulcer was healed completely; another showed definite and progressive improvement, but a third with multiple extensive decubitus ulcers of long duration failed to respond.

5. Other lesions, such as infected burns and extensive granulating wounds, favorably responded to this method of therapy.

6. These results show that a by-product of plasma production may be utilized as an effective therapeutic agent in the treatment of open wounds.

Clinical Notes, Suggestions and New Instruments

BILATERAL SPONTANEOUS PNEUMOTHORAX

MAJOR ALBERT C. KING AND CAPTAIN MURRAY BENSON
MEDICAL CORPS, ARMY OF THE UNITED STATES

Chief and Assistant Chief Respectively of the X-Ray Service

In a series of over 5,000 patients we have had 4 instances of spontaneous pneumothorax. One of these proved to be of tuberculous origin. All 4 occurred on the right side. Three of the patients recovered completely. The case we are reporting ended fatally. The condition of pneumothorax simplex was first described by MacDowel in 1856. In some of the cases described a rupture of a valve vesicle on the lung was thought to be the cause; in the majority of the cases no cause was found. In about 25 per cent of cases recurrence in the same lung field was reported. An uncommon form, called the alternating type, was found in a small percentage of cases. In this type one pneumothorax healed fully, and some time later the other lung developed a pneumothorax. The rarest type was the bilateral spontaneous pneumothorax, in which one side ruptured before the original rupture had time to heal. It was because of this rarity that this case was presented. Being far removed from sources of statistics, we do not know how many cases of this type have been reported. We hope this case will add to the record.

REPORT OF CASE

On Aug. 19, 1943 a white soldier aged 27 was admitted to the hospital because of pain in the left side of the chest. There was nothing remarkable in his family history. His mother died of carcinoma of the uterus. His father was killed in the mines. One brother has "miners' asthma." One younger sister died of heart trouble. Five brothers and two sisters are living and well. As a child he had measles, mumps and chickenpox. As a youngster he was struck by an automobile and remained in coma for twenty-four hours. In 1928 he had his tonsils removed. In civilian life he was employed by an advertising firm. In the Army he was trained as an airplane

3. Naide, M.: Treatment of Leg Ulcers with Blood and Concentrated Plasma. *Am. J. M. Sc.* 205: 489-493 (April) 1943.
4. Seldon, T. H., and Young, H. H.: Use of Dried Red Blood Cells in Wound Healing. *Proc. Staff Meet., Mayo Clin.* 18: 355-359 (Oct. 29) 1943.

Major Henry C. Dorris, Chief of the Medical Service, and Captain Marvin N. Solomon, Chief of the Laboratory Service, helped in this case.

mechanic. He has been in the Army twenty months and has had no previous hospital admission. On August 7 he developed a severe type of diarrhea, nonspecific in nature. This lasted eight days, and he recovered completely under symptomatic treatment. He was well until the morning of August 18, when he developed a pain in the center of his back, following

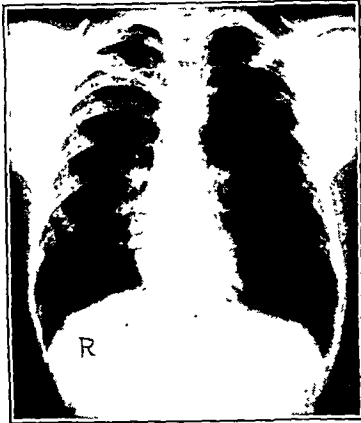


Fig. 1.—Left pneumothorax, Aug. 19, 1943.

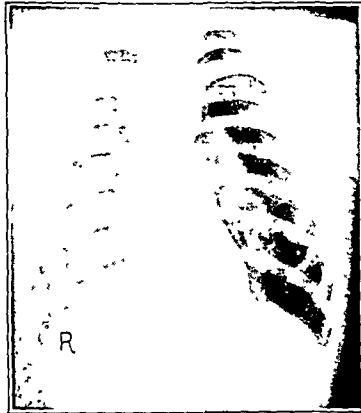


Fig. 2.—Reexpansion of left pneumothorax, Aug. 23.

the lifting and turning around of a fighter plane. He continued to work, however, and remained on duty without much difficulty. The next morning, August 19, while resting in bed, he was suddenly taken with an agonizing pain in the left side of the chest and especially in his left shoulder region. As he described it "it seemed like the strangest sensation; my chest filled up with gas and my left chest seemed to tighten upon me." It is interesting to note that the first medical officer to see him a short while later found him improved but noted a rigid abdomen and sent him into the hospital with a tentative diagnosis of perforated duodenal ulcer.

The patient was well developed and nourished. He was not in acute distress. His color was good, though there was a tinge of cyanosis to his lips. His pulse rate was 92, respiratory rate 26, temperature 97.8 F. and blood pressure 110/80. A routine urine examination and complete blood count were non-contributory. The left side of the chest bulged laterally. There were no breath sounds in this region. Percussion revealed intensified hyperresonance in the entire left chest. His heart was slightly displaced to the right. He was given codeine and later pentobarbital sodium. In a short time, he felt better and had a restful night. He was carefully watched for a possible tension pneumothorax.

On August 23 breath sounds were heard in the upper part of the left chest. He felt well. There was no dyspnea nor cyanosis. He was doing very well, when on August 29, ten days after his admission to the hospital, at 4:50 a. m., he suddenly became extremely dyspneic and resembled a patient in a severe asthmatic attack. It is interesting to note that thirty minutes prior to this the nurse found him sleeping peacefully. Examination now revealed that his breathing was entirely abdominal. There was no expansion of either side of the chest. A few breath sounds were heard in the left chest but none in the right. He became very cyanotic and complained of agonizing pain in his right chest and right shoulder. His respirations rose to 60 per minute; they were labored and gasping in character. Air hunger became manifest. His pulse rose to 160. It was regular, though poor in quality. Hyperresonance was present in both chests, more so on the right. His condition appeared critical.

The patient was placed in an oxygen tent. A needle was then introduced into the fifth right interspace in the outer

axillary line. Air rushed out under considerably increased pressure. Immediately the patient's air hunger was relieved. His breathing became less gasping and struggling in character. His color improved. Subaqueous drainage was instituted. At 5:50 his respirations were down to 34. His pulse rate dropped to 120. A slight cyanosis remained. He was very cooperative and had no pain in his chest. At 7 p. m. of the same day his pulse rate fell to 90. His respirations remained at 34, and he was comfortable and had no complaints. At 11:50 p. m. he suddenly became restless. Though his respiratory rate remained at 35, he suddenly developed intense air hunger. He appeared struggling for air while in the oxygen tent. His pulse was 76, and cyanosis was moderate. On August 30 at 9 a. m. his respirations suddenly dropped to 18, his pulse rose to 140 and cyanosis became deep. He became mentally depressed and did not respond to any painful stimuli. His pupils were pin point. The total amount of morphine administered in the past twenty-four hours was $1\frac{1}{2}$ grains (0.1 Gm.). At 9:50 a. m. his respirations were deep and of Cheyne-Stokes character. His pupils became dilated. Tracheal rales became audible. Cyanosis deepened and became generalized. He was perspiring freely. He died at 10:25 a. m.

An autopsy was performed several hours after death. Both lungs were found collapsed within their respective cavities. That of the left was slightly more expanded than that of the right. There was less than 10 cc. of free fluid in the left chest cavity. The heart was slightly displaced to the right. The right auricle was much distended. The right ventricle was also greatly distended. On the medial aspect of the left upper lobe, about 5 cm. below the apex, was a small area that was slightly raised from the surrounding pulmonary tissue, about 8 mm. in diameter, the center of which had a small tissue defect.

There was no evidence of a tear in the serosa of the right lung. There was no evidence, either by gross or by microscopic examination, of tuberculosis. The rest of the autopsy was non-contributory.

The anatomic diagnosis was atelectasis, pulmonary, bilateral, caused by pneumothorax, pulmonary, bilateral, spontaneous.

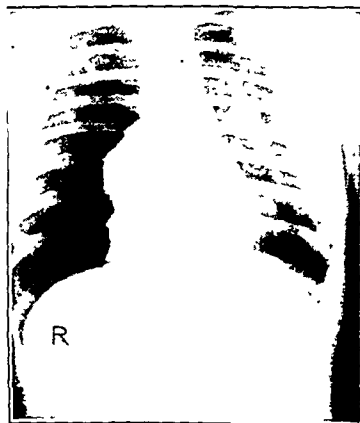


Fig. 3.—Left and right pneumothorax, August 27, 7 a. m.

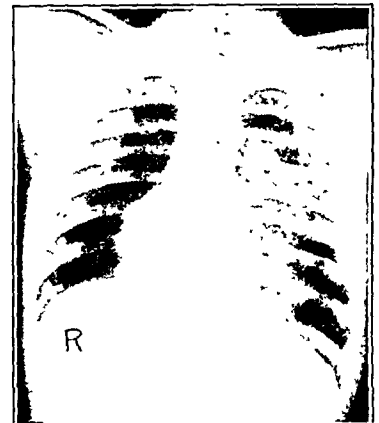


Fig. 4.—Left and right pneumothorax, August 27, 11 a. m.

We were fortunate in taking x-ray films of each pneumothorax. Figure 1 reveals the first left pneumothorax and was taken on the day of admission. Figure 2 reveals a partial expansion of the left pneumothorax and was taken on August 23. Figure 3 reveals a right pneumothorax in addition to the previous left pneumothorax and was taken on August 27 at 7 a. m. Figure 4 reveals similar findings as in figure 3 and was taken the same day but four hours later.

A NEW RAPID METHOD OF INTUBATION WITH
THE MILLER-ABBOTT TUBE

FRANKLIN I. HARRIS, M.D., SAN FRANCISCO

One of the major advances in the treatment of small bowel obstruction has been the development of the technic of intestinal intubation with the Miller-Abbott tube. Numerous reports show a considerable decrease in the deaths from intestinal obstruction when this method has been used. This reduced mortality depends, however, on a successful intubation and the maintenance of continuous suction of the obstructed bowel.

Intubation of the Miller-Abbott tube into the small bowel has been at times extremely difficult and occasionally impossible. Many patients are denied the life saving advantages of this treatment because of failure to master the technic of intubation. The principal obstacle to successful intubation is in the passage of the tip and its attached rubber balloon through the pylorus and into the duodenum. The tube has frequently a tendency to coil and even twist itself into a figure of eight knot in the stomach. Even if no coiling takes place, the tip may float along the lesser curvature for many hours and engage itself in the antrum or the pyloric ring. In the desperately sick toxic patient this delay may be extremely serious. Occasionally the tube may enter the duodenum but descend no farther even after inflation of the balloon. The urgent need for a more certain and rapid method of facilitating passage of the tip through the pylorus and duodenum has been recognized by all surgeons using intubation. The standard methods are well known and have been adequately described by Blodgett¹ and other writers. These methods need no further elaboration and are familiar to all who use intestinal intubation. The use of a wire stylet to pass the tip rapidly through the pylorus has recently been advocated by W. Osler Abbott.² I have had no experience with this method, but it seems quite complicated and not

to secure certain passage of the tip of the Miller-Abbott tube into the small bowel. Although Wilkins³ in 1928 used metallic mercury as a weight in the bucket of his single lumen nasal tube, its use in the double lumen tube in the manner herein described is original. The idea of using metallic mercury within the rubber balloon attached to the tip of the Miller-Abbott tube was originally considered because of its great weight and its fluidity and flexibility as well as because metallic mercury, when accidentally swallowed, rapidly passes through the entire intestinal tract and is excreted without any poisonous effect. It was hoped that the introduction of metallic mercury



Fig. 3.—Eight hours later, continued descent of Miller-Abbott tube without air inflation. Small bowel obstruction practically completely relieved (case 2).



Fig. 4.—Position of Miller-Abbott tube twelve hours after introduction with mercury and air inflation of the bag (case 2).

into the rubber balloon might act to carry the tube rapidly into the small intestine.

An experience with 19 cases of small bowel obstruction during the past two years has justified this hope. With the use of this new technic there has been no failure in passing the tube into the obstructed bowel. The length of time necessary to pass the tube has been considerably shortened, and it has been also demonstrated that the weight of the mercury itself may carry the tube down the obstructed intestine without even inflating the rubber bag. This preliminary report is intended only to describe this new aid to intestinal intubation. At a later date a more comprehensive report will be presented covering this series of cases.

TECHNIC

If metallic mercury is to be used in the Miller-Abbott tube, the rubber bag should be carefully tested before introducing the tube into the stomach. This bag should be tested for air capacity and freshness of the rubber. The tube is then passed by the nasal route into the stomach in the usual manner. After the stomach has been emptied of its contents the patient is placed on his right side in the semi-Fowler position and from 4 to 8 cc. of liquid metallic mercury is injected into the rubber balloon through the smaller inner lumen of the double lumen tube. This injection is done by means of a 10 cc. luer syringe. The rubber bag, however, is not inflated with

air at this time. The optimum amount of mercury to be used has not as yet been exactly determined and does not appear to be of great importance. In this series the minimum amount has been 4 cc. and the maximum 8 cc. After the injection of the mercury the drainage lumen is connected to a continuous Wangenstein type of suction and the character of the drainage



Fig. 1.—Small bowel obstruction due to wound dehiscence (case 1).



Fig. 2.—Miller-Abbott tube filled with mercury passed into small bowel eight hours after surgery. Note that there is no air in the bag (case 1).

without danger of perforating the bowel or stomach. Abbott reports only two failures with this method in eighteen attempts.

My purpose in this preliminary report is to describe an experience with the use of liquid metallic mercury as an aid

From the Division of Surgery, Mount Zion Hospital.
1. Blodgett, J. B.: A Technic for the Satisfactory Use of the Miller-Abbott Tube, *Am. J. Surg.* 53: 271 (Aug.) 1941.
2. Abbott, W. O.: Indications for Use of Miller-Abbott Tube, *New England J. Med.* 225: 641 (Oct. 23) 1941.

3. Wilkins, J. A.: Mercury Weighted Stomach Tube, *J. A. M. A.* 91: 395 (Aug. 11) 1928.

carefully noted. About every fifteen minutes 1 inch of the tubing is fed into the stomach. In some patients within one-half to one hour the tube will start moving down spontaneously. It is important that a loop of slack tubing be left alongside the nares so that this spontaneous descent may be observed. In some cases it will take from two to six hours before the tube starts to descend spontaneously. When the appearance of the drainage changes to characteristic yellowish green small bowel contents or the tube has spontaneously been drawn into the stomach over 12 to 18 inches, it is assumed that it is then in the upper small bowel. It is then advisable to take a flat x-ray film, which will more accurately show the position of the tube. The mercury in the bag is an excellent opaque substance to demonstrate the exact position of the head of the tube (fig. 1).

If there is definite proof of its passage beyond the pylorus by x-ray or by the presumptive signs described, the rubber bag may be inflated with 25 to 40 cc. of air and the standard technic of the Miller-Abbott tube procedure then used. However, in the last 6 cases inflation of the rubber bag was not done. It was found that the weight of the mercury in the bag was sufficient to carry the tube well down into the obstructed bowel. If subsequent experience substantiates this observation it will be unnecessary to inflate the rubber bag and will give rise to the possibility of using a single lumen tube weighted with mercury for purposes of intestinal intubation. I have under consideration the use of such a tube experimentally and clinically as soon as I am able under wartime conditions to obtain its manufacture.

The withdrawal of the Miller-Abbott tube when used with mercury in the rubber bag is no more difficult than with the regular technic. If air has been used to inflate the bag, the air must first be removed to collapse the bag preparatory to removal of the tube.

The use of mercury in the manner described seems to eliminate the one great technical obstacle to certain and rapid intubation. Objection might be raised to this method on the theory that there is possibility of rupture of the rubber bag, which would permit the escape of free metallic mercury into the intestinal tract. This accident has not yet occurred in my experience, but should it happen there is little danger of mercury poisoning. Metallic mercury is not supposed to be a poison. According to the United States Dispensatory (1907 edition) mercury is sometimes given in the metallic state in quantities of a pound or two in obstruction of the bowel and acts by its weight. In the uncombined state it is inert and insoluble in ordinary solvents and even in concentrated hydrochloric acid. Dr. A. Rossen, former surgical resident at Mount Zion Hospital, has fed metallic mercury to laboratory animals such as dogs and guinea pigs in the amount used in the Miller-Abbott tube, and the metal has rapidly been eliminated without any apparent toxic effects. Search of the available pharmacologic textbooks has failed to show any definite statement that metallic mercury is poisonous. If the rubber bag is carefully tested by inflation with air before its introduction, the danger of leakage or breakage is most remote.

SUMMARY AND CONCLUSIONS

Liquid metallic mercury in amounts of from 4 to 8 cc. has been injected into the rubber bag of the Miller-Abbott tube to facilitate a more rapid and certain intubation.

In a series of 19 consecutive cases of obstruction of the small bowel the Miller-Abbott tube has been quickly and successfully introduced with the aid of this new technic.

It appears that the weight of mercury itself may carry the tube into the small bowel without the necessity of air inflation of the rubber bag.

Clinical and experimental work is contemplated with a new type of single lumen, mercury weighted, intestinal tube.

450 Sutter Street.

A NEW NASAL CATHETER HOLDER

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Lawrence General Hospital
Lawrence, Mass.

It occurred to us that the ordinary methods of holding a nasal catheter in place might be improved on. With this in mind several pieces of apparatus were tried, including some that have previously been described, but we feel that the

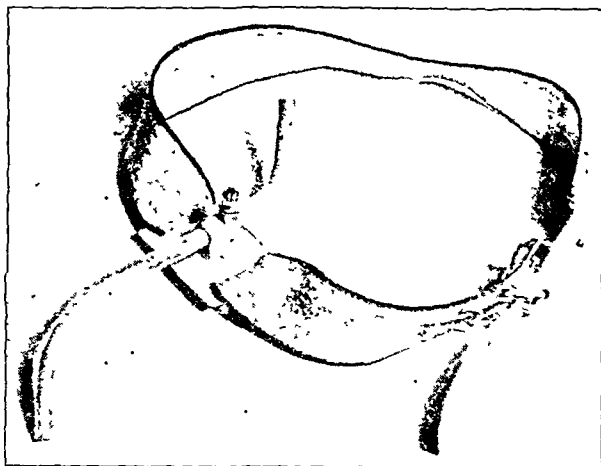


Fig. 1.—Nasal catheter holder.

simplicity of this holder, its inexpensiveness and the effectiveness of its use, particularly in the comfort to the patient, warrant its description to the medical profession.

It is composed of a piece of elastic suspender for a head band with a buckle attached; a swivel, double adjustable unit through which the elastic is passed, and a piece of hollow



Fig. 2.—Holder in use

metal tubing through which the nasal catheter is passed for satisfactory holding. The tubing may be adjusted in two planes to fit any patient.

The accompanying illustrations show the apparatus itself and the view of a patient five days after an intestinal resection. The patient had worn this continuously since his operation and had no complaints. This holder has also been used on other patients and there have been no apparent discomforts or criticisms.

From the surgical service of the Lawrence General Hospital.

Council on Pharmacy and Chemistry

UNTOWARD EFFECTS OF ENDOCRINE THERAPY

SINCE THE NUMBER OF HORMONE PREPARATIONS HAS INCREASED DECIDEDLY IN THE PAST DECADE, MANY PHYSICIANS FIND IT DIFFICULT TO KEEP ABREAST OF THE RAPID ADVANCES IN THERAPY. THE INCREASED POTENCY OF SEVERAL ENDOCRINE PREPARATIONS IMPLIES AN INCREASED DANGER FROM CARELESS USE. MUCH OF THE EASILY AVAILABLE INFORMATION ABOUT THE NEWER PRODUCTS IS DRAWN FROM PACKAGE INSERTS OR PROMOTIONAL LITERATURE WHICH ARE NOT ALWAYS ENTIRELY UNBIASED. IT SEEMS WORTH WHILE ASSEMBLING A DISCUSSION ABOUT THE TOXIC EFFECTS WHICH MAY RESULT FROM MISTAKEN OR INDISCRIMINATE USE OF HORMONE. THIS WILL HELP PHYSICIANS TO RECOGNIZE LIMITATIONS AS WELL AS POSSIBILITIES ATTENDANT ON THE PRESCRIPTION OF POTENT ENDOCRINE PRODUCTS. DR. RUTH H. ST. JOHN, OF OHIO STATE UNIVERSITY COLLEGE OF MEDICINE HAS BEEN OF ASSISTANCE IN THE PREPARATION OF THIS REPORT.

AUSTIN E. SMITH, M.D., Secretary

THYROID MEDICATION

The complications arising from the clinical use of thyroid may be divided broadly into two groups: first, toxic symptoms resulting from uncontrolled and unphysiologic use of thyroid; second, toxic effects from overdosage in cases demonstrating pathologic complexities.

Desiccated thyroid has come to be regarded as a potent and relatively safe therapeutic adjunct in a variety of conditions other than true hypothyroidism. It has three desirable but potentially dangerous attributes: it acts as a stimulant, it is orally effective and it can be obtained at low cost. These properties have led to a widespread empirical use by the doctor and to self medication by the patient.

Production of hyperthyroidism, with the accompanying symptoms of accelerated heart action, profuse sweating, diarrhea and nervousness, is the condition to be most feared in uncontrolled thyroid medication. All too frequently patients who have been placed on thyroid therapy will fail to report for periodic examinations. Responsibility for such failure must rest to a great extent with the physician. It is important to stress the need for follow-up examinations and in many cases to regulate the dosage, depending on the ability of the patient to follow instructions. Also the physician must be constantly aware that in thyroid he is dealing with a powerful metabolic regulator, and critical judgment must be employed when the temptation arises to prescribe it in the absence of clinical signs of hypothyroidism. This is particularly true in cases of obesity in which no thyroid deficiency can be demonstrated. If weight reduction does occur concomitant with its use, it is generally felt to be due to the production of a pathologic state of hyperthyroidism.¹ Critical thought must also be given to the empirical use of thyroid for prepuberal and adolescent girls. Whereas apparent beneficial stimulation is frequently obtained, it would appear that the unintentional production of a hyperthyroid state might have serious effects on the organism as a whole and specific damage might occur to the delicate balance of the thyrogonadal relationships which are present at this time.² It is also possible that normal thyroid function may be reduced by the long continued use of thyroid in high dosage levels.³

The second group of toxic complications embraces the less frequent but very serious effects of high thyroid dosage in certain disease entities. Recently attention has been directed to a condition termed "pituitary myxedema."⁴ These patients present, in addition to the common signs of thyroid deficiency, additional signs of hypopituitarism and low adrenal function. High thyroid dosage will precipitate in such cases the dangerous symptoms of the acute crisis typical of adrenal insufficiency. Obviously, thyroid therapy used in Addison's disease would subject the patient to the identical danger of producing such a crisis.

In true myxedema the heart picture is one of potential myocardial insufficiency. Care must be used in establishing the individual tolerance of the patient to adequate thyroid dosage in order to avoid undue strain on the weakened heart.

The presence of coronary heart disease is also a contraindication to high thyroid dosage. It is extremely important in all adult patients for whom thyroid therapy is contemplated to obtain a careful history and physical examination in the search for the possible existence of coronary disease.⁵

It is often noted that in the presence of severe thyroid deficiency the initial doses of thyroid are at times poorly tolerated. When this occurs the physician holds a definite responsibility to his patient, particularly in the hypothyroidism of childhood. Thyroid therapy should not be abandoned if the need for it has been accurately determined.⁶ Lower dosage levels should be tried, and it is possible that there may be a variation in the clinical response to different commercial thyroid products.

It is extremely important for the physician to realize the variation which exists in the potency of thyroid extracts.⁶ In order to maintain carefully controlled medication it would seem wise for the physician to make use of preparations which meet the requirements of the U. S. Pharmacopeia for standard thyroid.

ADRENAL CORTEX EXTRACTS AND DESOXYCORTICOSTERONE

The availability of potent adrenal extracts and of synthetic desoxycorticosterone has meant the maintenance of life for many patients with Addison's disease. So far there has been no evidence of toxic effect incident to the use of natural adrenal cortex extracts in treatment of true adrenal insufficiency.⁷ Possibly the only danger in the use of adrenal cortex extract is that of inadequate dosage. Some of the commercial preparations have been of low potency, and it is important for the physician to assure himself of the potency of any product he prescribes until a definite standard of potency has been adopted.

The use of desoxycorticosterone acetate, which has the advantage of higher potency and lower cost, presents a number of hazards. Desoxycorticosterone does not control carbohydrate metabolism. Additional measures must be employed to treat the hypoglycemic trends which characterize Addison's disease.⁸ In the use of this synthetic drug there are decided dangers in over-

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2. Salter, W. T.: *Endocrine Function of Iodine*, Cambridge, Mass., Harvard University Press, 1940.

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6. Means, J. H.: *Thyroid and Its Diseases*, Philadelphia: J. F. Lippincott Company, 1937.

7. Gordon, L.: *The Use of Desoxycorticosterone and Its Effect in the Treatment of Addison's Disease*, J. A. M. A. 111: 21-24 (June 29) 1940.

8. Thorn, G.: *Desoxycorticosterone*, J. Mount Sinai Hosp. 11: 117-119 (March-April) 1942.

medication and in uncontrolled medication. Such complications of therapy include edema, hypertension, cardiac insufficiency, muscular weakness, joint and muscular pains and hypoglycemia. These toxic reactions are due in general to the increased load on the cardiovascular system resulting from the increase in blood volume and blood pressure and to the pronounced retention of sodium chloride and the lowering of serum potassium. Careful regulation of sodium, potassium and water intake is important in the therapeutic regimen.⁹ It is also important for the clinician to familiarize himself with approved dosage levels in the use both of the synthetic and of the natural hormone, since it is not always possible, particularly in an emergency, to rely on commercial literature for directions.

Experimental work has been conducted in the use of adrenal cortex preparations in conditions other than Addison's disease. Surgical and traumatic shock, asthenia, hypotension and fatigue are some of the clinical conditions for which the use of the extracts has been urged. In general, the results have been disappointing and have failed to substantiate the commercial claims. The general practitioner who wishes to attempt such empirical therapy should be aware of the possibility of toxic complications when the synthetic hormone is used.

ESTROGENIC SUBSTANCES

Estrogen therapy has become increasingly popular in the last few years, and the introduction of the inexpensive and orally effective synthetic stilbestrol derivatives has contributed greatly to the hazards incident to uncritical use. Fortunately the toxic complications of nausea, headache and general malaise, which occasionally occur in the course of diethylstilbestrol therapy, are transitory and may usually be controlled by reducing the dosage level.¹⁰ There is apparently no evidence to substantiate the fear that serious liver, kidney or bone marrow damage may develop,¹¹ but careful investigators realize the clinical uncertainty which exists regarding drugs that are capable of producing toxic effects.¹²

The abnormal degree of endometrial hyperplasia which may result from excessive or prolonged administration of natural or synthetic estrogens should be a source of some apprehension. Two primary possibilities should be considered. First, a persistent effect may be produced leading to cystic endometrial glands,¹³ and, second, such hyperplasia might stimulate a latent neoplastic growth.¹⁴

It has been shown that some hormones exhibit a carcinogenic property in animals. This is particularly true of estrogens.¹⁵ A carcinogenic effect has not been demonstrated in human beings,¹⁶ but the proliferative action of estrogens on the endometrium must be regarded as a potential stimulator of preexisting neo-

plastic growth. With this in mind, prolonged administration of estrogenic materials should be guarded against, particularly with patients who present a hereditary background favoring neoplastic growth.¹⁷ Frequent pelvic examinations should be made in the course of estrogen therapy, particularly when estrogen withdrawal bleeding has been known to occur, in order to differentiate between such bleeding and that of early cancer.

There is a considerable degree of misunderstanding with regard to the choice between estrogens and gonadotropic materials in the correction of menstrual disorders. Estrogenic substances do not stimulate ovarian function. They may be used to stimulate uterine growth and development in hypoplastic conditions and may be relied on as replacement medication in primary ovarian failure and in natural or surgical atrophy or removal of the ovaries; but, when ovarian stimulation is sought, pituitary or equine gonadotropic materials must be employed.

There are many types of ovarian dysfunction in which estrogen therapy has been employed. In general it might be said that the rationale of such therapy in conditions other than those mentioned is the attempt at restoring what is regarded as a disturbed physiologic balance between estrogens and progesterone. When such therapy is used, a cyclic plan should be followed. Pathologic effects may result from the unphysiologic use of an estrogen in the last half of the menstrual cycle. There is evidence that normal corpus luteum function may be depressed with resultant short cycles and variable flows.¹⁸ When large doses of an estrogen are used in young women, ovulation may be inhibited. This procedure has been employed as a means of treating dysmenorrhea and would appear to be an undesirable practice during the child bearing age.¹⁹

PROGESTERONE

Progesterone therapy is being tried in a variety of gynecologic conditions, but as yet its uses are not clear.²⁰ It is a replacement for deficient corpus luteum hormone activities and does not have a direct stimulative effect on the ovaries. It is thought by some investigators to be of value in certain types of dysmenorrhea, in habitual abortion and in functional uterine bleeding.²¹ Other reports show disappointing results in these conditions, particularly with regard to the quieting effect of progesterone on uterine muscles.²²

Substitution therapy combining estrogens and progesterone in a cyclic plan of treatment has been effective in inducing normal menstrual cycles both in amenorrhea and in functional bleeding.²³ However, the expense of progesterone medication is prohibitive in many cases, and critical judgment should be employed before subjecting the patient to an experimental type of therapy.

The physician must also be warned against the use of unstandardized preparations. There are still corpus luteum extracts on the market which contain little if any of the active progesterone.²⁴

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20. Hamblen, E. C.: Friedgood.¹²

21. Hamblen, E. C.: Metabolism and Utilization of Progesterone, *J. Mount Sinai Hosp.* 8: 1200-1215 (March-April) 1942.

22. Allen, W., and Heckel, G.: Progesterone in Functional Uterine Bleeding, *Am. J. Obst. & Gynec.* 44: 984-988 (Dec.) 1942. Geist and Salmon.²⁴

TESTOSTERONE

Use in the Female.—Testosterone propionate (injectable) and methyl testosterone (oral) have come into recent use in the female as a means of inhibiting abnormal uterine bleeding. Although the mode of action has not been definitely determined, it is thought that these compounds may act by suppression of pituitary gonadotropic activity, by inactivation of estrogens or by inhibition of the proliferative capacity of the endometrium.²³

There is a justifiable fear attendant on such therapy, since masculinizing symptoms have been known to appear. These symptoms, frequently referred to as "arrhenomimetic," include excessive hair growth, hoarseness, deepening of the voice, acne and enlargement of the clitoris.²⁴ The dosage level is of great importance. Such masculinizing effects have rarely occurred when the total dose has been kept under 300 mg. per month. Fortunately, if such symptoms do occur, they are usually transitory, seldom persisting more than a few weeks following cessation of therapy.²⁵ However, cases have been reported of voice changes persisting more than two years after discontinuing therapy.²⁵

It is generally agreed that androgen therapy should be carefully controlled to avoid such difficulties and that the use of the vaginal smear for estrogenic activity provides a reliable indicator of the suppressive action of the androgenic hormone. Vaginal smears will demonstrate the degree of estrogenic depression long before the clinical occurrence of arrhenomimetic symptoms.²⁶

Use in the Male.—In the male, androgen therapy has been regarded with certain misgivings when used in prepuberal and adolescent boys. Fears have been expressed regarding the possibility of producing precocious puberty,²⁷ premature closure of the epiphyses with the subsequent stunting of growth²⁸ and atrophy of the testicles.²⁹ Recent studies are more optimistic and tend to stress the stimulating effects on growth and genital development.³⁰ Since testosterone therapy is still in an experimental state, the patient under treatment must be carefully observed for untoward effects and the dose varied according to individual response.

In castrate and eunuchoid cases and in the male climacteric, testosterone provides a potent replacement therapy.²⁷ Oral medication with methyl testosterone has proved satisfactory and has facilitated such treatment, but both oral and parenteral therapy are expensive to the patient, since the treatments are often neces-

sarily prolonged. Only occasionally have the transient effects of headache or nausea appeared with the use of testosterone.

GONADOTROPINS

Gonadotropic material is available from three sources: (1) chorionic, obtained from the urine or placenta of pregnant women; (2) the combined pituitary hormones obtained from extracts of the anterior pituitary lobes of domesticated animals; (3) gonadotropic substances obtained from the serum of pregnant mares.

Chorionic Gonadotropins.—It is generally conceded that chorionic gonadotropins do not have the properties attributed to pituitary or equine gonadotropins. Chorionic material does not stimulate the ovary to follicle formation or to ovulation, nor can it be utilized in other instances when substitution therapy is required for anterior pituitary deficiency.³¹

In the female, chorionic gonadotropins are apparently of some value in sustaining corpus luteum function, but this factor has not as yet been proved to be of clinical value.³² The use of chorionic material in functional bleeding and in dysmenorrhea has no sound scientific basis,³³ and recent investigations tend in general to discourage its use in gynecologic practice.³⁴ Other benefits which commercial literature claims for the use of chorionic gonadotropins have not as yet been proved to be dependable. Obviously, its therapeutic value is still in the experimental stage.

In the male, chorionic gonadotropins have been shown to act as a potent stimulator of the interstitial tissue of the testicle which justifies their use in treatment of undescended testicles and genital underdevelopment. Frequent observation of the patient is to be urged in order to avoid excessive enlargement of the genitalia which may result from prolonged administration of the material.³⁵ It is thought by some investigators that antibody formation will occur in the course of long continued therapy, and perhaps this development may be avoided by discontinuation of the injections at regular intervals.³⁶

Pituitary and Equine Gonadotropins.—In spite of lack of certainty regarding the exact nature of the pituitary hormones and the subsequent difficulties encountered in standardizing commercial products there are a number of such preparations on the market, and many claims are made for their use.

There are a number of limitations in the use of gonadotropic material. In spite of continued attempts to reduce the protein content of the material, the patient may exhibit an allergy to these proteins, with symptoms varying from mild local reaction at the site of injection to severe anaphylactic shock. It is also possible that sensitivity may develop following a course of treatment, with serious results from subsequent injections.³⁷ Antibody formation is also to be considered; discontinuing injection at regular intervals during a course of treatment is thought to reduce this risk.³⁸ The chief handicap, however, in the clinical use of pituitary and equine gonadotropins is the low and

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35. Sevrinhaus, E. L.: Endocrine Therapy in Adolescence, *West. J. Surg.* 51: 153-164 (April) 1943.

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variable potency and the high cost of commercially available preparations. All these factors make it extremely important for the physician to give his patient the benefit of a careful and critical diagnostic appraisal before subjecting the patient to a long, expensive and possibly futile course of therapy.

In the female, endometrial biopsies and vaginal smears for determining estrogenic activity are extremely valuable diagnostic measures to be employed in evaluating the initial degree of ovarian activity and the possibility of obtaining response to gonadotropic therapy. When primary ovarian failure is shown to exist, no stimulative action may be expected to result from the use of gonadotropic therapy. If the ovarian dysfunction is thought to be the result of inadequate pituitary stimulation, pituitary or equine gonadotropins may be useful. It has been suggested that equine gonadotropins possibly have a more specific gonadal effect than anterior pituitary lobe preparations, since the latter must necessarily include other pituitary hormonal factors.³⁷ However, it is generally conceded that gonadotropic therapy is still unsatisfactory and will remain so until pure gonadotropic principles can be elaborated from the anterior pituitary lobe.³⁷

In the male, certain types of infantilism or delayed puberty may respond to pituitary or equine gonadotropic therapy with the result of increased growth and genital development.³⁸ In all conditions, in both male and female, symptomatic improvement after a reasonable trial of therapy must necessarily be a measure of successful therapy. If no beneficial changes occur, there is no value in continuing the therapy.³⁸

Recently an attempt has been made to determine the synergistic effect of combined chorionic and pituitary gonadotropin. There is one such mixed product on the market. The clinical effect in human beings is still under investigation.³⁹ Experimental work indicates a very high degree of stimulation in rat ovaries with use of the combined preparations. Although the manufacturers of the product warn against uncritical use of the material, it has nevertheless been used without proper concern for the possible deleterious effect on the ovaries.

PITUITARY GROWTH HORMONE

There are several pituitary products on the market which are claimed to contain a relatively high concentration of the "growth factor."⁴⁰ Since it is still impossible to isolate or identify the separate principles of the pituitary hormone, the potency of such products must remain questionable. An attempt at standardization has been made, using rat growth units, but such standardizations are not uniform as between competing products. The complications involved in the use of growth hormones are the same as those described for any of the pituitary gonadotropic materials.

If the use of the growth promoting factor is to be considered, the physician owes it to his patient to explain the experimental nature of such therapy. The physician must also be aware of the complex relationships between growth and genital development and should insist on frequent observation of the patient in order to avoid untoward effects. In cases of uncomplicated dwarfism, when x-rays show the epiphyses of the

long bones to be open, growth has been stimulated in a number of reported cases, but unfortunately such response is not dependable.⁴¹

POSTERIOR PITUITARY PRODUCTS

The commercial products of the posterior lobe of the pituitary gland include the water soluble principles of the whole posterior lobe, the powdered posterior pituitary substance and the fractionated extracts described as oxytocic and pressor factors. The therapeutic effects of these products are related to cardiovascular, renal, gastrointestinal and obstetric action.

There have been many reports of hypersensitivity to these products.⁴² In general, the toxic effects are those of shock, with symptoms of pallor, rapid pulse, fall in blood pressure, air hunger, edema and coma. These symptoms may be alleviated by the use of epinephrine.

Certain specific dangers may be related to the cardiovascular effect, and care should be used in administering posterior pituitary products to patients who have pre-existing heart disease. The specific dangers of careless use of the oxytocic principle in obstetric cases are fairly well known. Rupture of the uterus, laceration of the cervix and cardiac death due to the sudden strain of physical exertion in labor are some of the reported effects of uncontrolled therapy.

The intestinal stimulation obtained by use of the pressor fraction is of clinical value in treatment of paralytic ileus and postoperative distention but may be a source of toxic irritation in the long continued use of posterior pituitary substance in treatment of such conditions as diabetes insipidus. Too large a dose will occasionally produce intestinal cramping and pain, and it is important to adjust the dosage level to a point where such effects will be obviated.⁴³

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

NEO-SYNEPHRINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1944, p. 284).

The following additional dosage forms have been accepted:

FREDERICK STEARNS & Co., DETROIT

Solution Neo-Synephrine Hydrochloride, 1/8 per Cent: 15 cc. neo-synephrine hydrochloride 1/8 per cent, sodium chloride 0.1 per cent, boric acid 2.2 per cent with chlorobutanol 0.4 per cent and sodium bisulfite 0.5 per cent as preservatives in an aqueous solution.

Solution Neo-Synephrine Hydrochloride, 2 1/2 per Cent: 15 cc. neo-synephrine hydrochloride 2 1/2 per cent, ascorbic acid 1.0 per cent as a stabilizer, chlorobutanol 0.4 per cent and sodium bisulfite 0.1 per cent as preservatives in an aqueous solution.

Solution Neo-Synephrine Hydrochloride, 10 per Cent: 4 cc. neo-synephrine hydrochloride 10 per cent, ascorbic acid 1.0 per cent as a stabilizer, chlorobutanol 0.4 per cent and sodium bisulfite 0.1 per cent as preservatives in an aqueous solution.

RIBOFLAVIN (See New and Nonofficial Remedies, 1944, p. 613).

The following dosage forms have been accepted:

WILLIAM R. WARNER & Co., INC., NEW YORK

Tablets Riboflavin: 1 mg.

AMERICAN PHARMACEUTICAL Co., INC., NEW YORK

Tablets Riboflavin: 1 mg. and 5 mg.

37. Geist and Salmon,²⁴ Davis and Hellbaum.³¹
38. Sevringhaus, E. L.: Treatment of Gonadal Hypofunction, *Bull. New York Acad. Med.* 16: 53-62 (Feb.) 1940.

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SATURDAY, JULY 15, 1944

DEFERMENT OF PREMEDICAL STUDENTS

Elsewhere in this issue (page 794) are published a letter from Congressman A. L. Miller of Nebraska to the President regarding current Selective Service regulations pertaining to premedical and medical students, and the President's reply. Granted that the premedical students involved will not become available as physicians until 1948, starting now and continuing until the war is over, students will commence premedical studies in utterly inadequate numbers. These lost premedical months or years cannot be regained after the war is over.

The President's suggestion that women and physically disqualified men can supply the need does not take into account the fact that qualified students in this category are not available in sufficient numbers now unless educational standards are drastically reduced. Furthermore, the study and practice of medicine are arduous, requiring vigorous health. These are not occupations for the physically unfit. The physically unfit cannot be expected to give an equal return in years of service to that given by those who are physically competent.

The same considerations must apply to discharged veterans. Many of these are physically unfit and emotionally unstable. This group will also include men who have previously been rejected for admission to medical schools because of failure to meet admission standards.

Certainly every favorable consideration should be given to medical school applications from veterans, to whom we are all immeasurably and forever indebted. But it would serve neither the veterans nor the public to admit to medical schools men who do not possess the required physical, emotional, mental and other qualifications.

PATHOGENESIS OF MYASTHENIA GRAVIS

In 1930 Harriet Edgeworth reported relief of asthenia, dysphagia, diplopia and disturbance of speech when she took ephedrine by mouth. Walker in 1934 administered physostigmine salicylate to a patient with myasthenia gravis because it was thought that the muscles in myasthenia behave like muscles poisoned by curare, so that physostigmine, an antagonist to curare, might counteract the unknown substance which seemed to be exerting a curare-like effect on the motor nerve endings. Subsequently a synthetic analogue known as neostigmine replaced physostigmine as the remedy of choice, owing to its less toxic side effects. The remarkable response to neostigmine given by hypodermic injections led to its use as a diagnostic measure by Viets and Schwab. These authors¹ gave neostigmine bromide orally to 44 patients with myasthenia gravis and supplemented it with ephedrine sulfate, potassium chloride and occasionally guanidine. Forty-three of their patients had a characteristic reaction to the combined therapy of neostigmine and ephedrine. Ephedrine increased the effect of the neostigmine in 41 of the 43 cases and failed in only 2. Aminoacetic acid did not prove to be useful. Guanidine increased the effect of neostigmine in a few cases and failed in many.

Studies by Dale and by Loewi demonstrated that acetylcholine is liberated on stimulation of the motor nerves supplying striated muscles. Physostigmine enhances and prolongs muscle contraction apparently by inhibiting the destructive action of cholinesterase on acetylcholine. The abnormal fatigability in myasthenia gravis has been thought to be due to curare-like poisoning of the motor nerve endings of the neuromuscular junctions in the affected muscles. Gammon and Scheie stressed the clinical observation that neostigmine, which produces fasciculations in the muscles of normal subjects and of patients in a variety of diseases involving the nervous and muscular systems, failed to elicit fasciculations in patients with myasthenia gravis. Harvey, Lilienthal and Talbot² showed that even high concentrations of neostigmine attained in a small localized area do not produce fascicular twitches in the myasthenic subject. The fundamental defect in myasthenia gravis lies in some disturbance of the neuromuscular transmitting mechanism. The repair of this defect by neostigmine, which is known to protect the acetylcholine release of motor nerve endings from hydrolysis by cholinesterase, supports the hypothesis that in this disease the normal metabolism of acetylcholine is deranged. In the normal subject neostigmine injected intra-arterially produces a profound local

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2. Harvey, A. M.; Lilienthal, J. L., Jr., and Talbot, S. A.: The Effects of the Intra-Arterial Injection of Acetylcholine and Physostigmine in Normal Man, *Bull. Johns Hopkins Hosp.*, **69**:522 (Dec.) 1941.

paresis, which has been assumed to result from the accumulation of a paralyzing concentration of acetylcholine (Harvey, Lilienthal and Talbot). These authors conclude that the fundamental defect in myasthenia gravis is reduction in the quantity of the transmitting agent available or released. Acetylcholine when injected intra-arterially evokes in a myasthenic patient a powerful sustained contraction of the injected muscles. This is in partial contrast with the transitory weakness evoked in normal subjects. The analogy between myasthenia gravis and partial curarization suggests the hypothesis that a circulating inhibitory substance may be responsible for the primary neuromuscular defect. There is evidence to suggest that this hypothetical substance may arise from the thymus. This idea is supported by the experience of Blalock³ who has recorded the instant cure of severe myasthenia gravis by the removal of a cystic tumor from the thymic region. Several cases have been reported in which the removal of a thymic tumor or hyperplastic thymus has resulted in great improvement. Postmortem examination of patients with myasthenia gravis has shown that about 50 per cent have hyperplasia, tumor or persistence of the thymus.

Harvey and his associates⁴ reported great clinical improvement in 3 of 5 patients with severe myasthenia gravis following total extirpation of the thymus. The intra-arterial injection of neostigmine in contrast to the effect before thymectomy, now produced local fascicular twitching, repetitive response to a single stimulus, normal local paresis and a depression of neuromuscular transmission. These changes indicate an increase after thymectomy of transmitter substance available at the neuromuscular junction. Apparently in some patients the thymus assumed an important role in the pathogenesis of myasthenia gravis.

Wilson and Stoner⁵ found the serum cholinesterase activity in 14 patients with myasthenia gravis to be no greater than that of normal adults. Apparently the muscular weakness in myasthenia gravis is not due to an excessively rapid destruction of acetylcholine by cholinesterase. They were able to demonstrate by means of cinecamera and kymograph studies that exercise of a remote group of muscles produces an increase in the severity of the signs of the disease. They conclude that the most probable explanation of the phenomena of myasthenia gravis is the presence of some substance in the blood which produces a block in neuromuscular transmission and inhibits the normal action of acetylcholine on voluntary muscle. The thymus may play an integral part in the secretion or

control of this substance. The action of neostigmine on the myasthenic patient may be to produce some antagonistic effect on the inhibiting substance and thereby restore the normal threshold of the effector to acetylcholine.

METABOLIC DESTRUCTION OF MOTOR END PLATES

During postmortem rigidity a rapid disappearance of motor end plates occurs in human skeletal muscle, associated with a considerable local increase in hydrogen ion concentration. This increase is due mainly to a local accumulation of lactic acid, which usually reaches a concentration of from 0.05 to 0.3 per cent¹ in rigor mortis. The possible causal relationship between locally increased acidity and end plate degeneration was tested by Carey² of the Department of Anatomy, Marquette University, who studied the morphologic effects of intramuscular injections of lactic acid in white rats.

Under pentobarbital sodium anesthesia the right sternomastoid muscle was removed as a control and run through the gold technique³ and other histologic methods. Following this removal 0.1 cc of 0.05 to 0.3 per cent lactic acid in isotonic solution of sodium chloride was injected into the opposite sternomastoid muscle. The injected muscle was removed for microscopic study from thirty seconds to twenty-five minutes later. Comparison of the two excised muscles revealed that there was a retraction of many of the end plates within thirty seconds after the acid injection, with a considerably increased staining reaction for gold, accompanied by a considerable dilatation of the epilemmal axons. This was soon followed by an abnormal expansion and decreased staining reaction of the end plates, with beginning fragmentation of the hypolemmal axons. By the end of twenty-five minutes many or, at times, practically all of the end plates and epilemmal axons had disappeared, the rate depending on the lactic acid concentration. In many muscle fibers there were clear oval spaces of liquefaction at the previous sites of the end plates. Electrical stimulation of the spinal accessory nerve showed that within thirty seconds the muscle was completely paralyzed by 0.05 per cent lactic acid.

The results of this study confirm the previous belief that acid metabolites which accumulate during rigor mortis are responsible for the local destruction of motor end plates. Carey is of the opinion that as a result of excessive or prolonged muscular activity a similar metabolic destruction of end plates may take place during life. This hypothesis offers a plausible explanation for the rapid destruction of motor end plates in experimental poliomyelitis in monkeys⁴ and suggests

³ Blalock, Alfred, Harvey, A. McGehee, Ford, Frank R., and Lilienthal, Joseph I., Jr. The Treatment of Myasthenia Gravis by Removal of the Thymus Glands. *J. A. M. A.* **117**: 1529 (Nov. 1) 1941.

⁴ Harvey, A. M., Lilienthal, J. I., Jr. and Talbot, S. A. Observations on the Nature of Myasthenia Gravis. The Effect of Thymectomy on Neuromuscular Transmission. *J. Clin. Investigation* **21**: 579 (Sept.) 1942.

⁵ Wilson, Andrew, and Stoner, H. Berrington. Myasthenia Gravis. A Consideration of Its Causation in a Study of 14 Cases. *Quart. J. Med.* **13**:1 (Jan.) 1944.

¹ Fletcher, W. M., and Hopkins, F. G. *J. Physiol.* **35**: 247, 1901-1907.

² Carey, E. J., and Massopust, L. *Proc. Soc. Exper. Biol. & Med.* **55**: 194 (March) 1944.

³ Carey, E. J. *Am. J. Path.* **18**: 237, 1942.

⁴ Carey, E. J. *Proc. Soc. Exper. Biol. & Med.* **53**: 3, 1943.

new therapeutic methods. As early as 1851 it was shown by Brown-Séquard² that intravascular injection of alkaline solutions removes rigor in animals and reestablishes muscle irritability.

Current Comment

THE G. I. BILL OF RIGHTS

The broad objective of the Servicemen's Readjustment Act of 1944 is the integration of veterans of the present war into civilian life in the most prompt and adequate manner. Elsewhere in this issue (page 796) is an analysis of the new act, prepared by the Bureau of Legal Medicine and Legislation. Certain provisions of the act are of special interest to physicians in service, especially to the younger physicians. These younger physicians will return to civilian life faced with the necessity of establishing for the first time a civilian practice or of reestablishing a practice pursued only a short time before entry into service. Refresher courses will be made available under the title dealing with education, extending over a period of one year, with maintenance allowances. Machinery is set up whereby the Veterans' Administration will guarantee loans made to veterans for specified purposes, including the purchase of supplies and equipment to be used in a gainful occupation. A third title, in providing for adjustment allowances for unemployed veterans generally, will make available a similar benefit for veterans self employed for profit in an independent business or profession whose income during the preceding calendar month from that business or profession was less than \$100. The program authorized by this act will be a costly one to the nation but, as expressed by the Senate Committee on Finance, "The men and women who compose our armed forces and who will compose our armed forces before the end of the war not only now hold the destiny of this republic firmly in their hands, they will so hold it for a generation to come. To the extent to which these men and women can be speedily reintegrated into the civilian population, the consummation of all of our hopes and prayers for national security and advancement depend."

THERAPY OF SHOCK

The restoration of blood volume by administration of whole blood or blood substitutes has revolutionized the treatment of shock. As a result, many have overlooked that the reduced blood volume and the circulatory disturbances are easily followed by metabolic disorders which may be as important as the circulatory collapse itself. Govier and Greer¹ showed that the correction of the defective breakdown of glucose in the periphery by administration of thiamine prolongs significantly the survival time of dogs subjected to hemorrhagic shock and that a high thiamine intake increases the resistance of the animals against shock.

More recently Soskin and his group² have emphasized the importance in the treatment of shock of replenishing the cells with easily oxidizable substrates and of controlling acidosis. Irreversible hemorrhagic shock was produced by slow blood withdrawal in which 75 per cent of the dogs died in spite of being reinjected with all the blood that had been withdrawn. The correction of acidosis by addition of sodium bicarbonate to the whole blood reinjected reduced the death rate to 50 per cent. Combinations of the sodium ion and any easily oxidizable substrate such as glucose, lactate or succinate to the whole blood reinjected reduced the mortality rate of so-called irreversible shock to figures as low as 25 per cent. These studies demonstrate that the circulatory collapse is only a partial feature in the complex mechanism of shock. Hence its correction does not constitute more than a partial therapy of shock and one which is ineffective in the irreversible stage. To prevent the development of irreversible shock or to treat advanced shock adequately, consideration must be given to the secondary tissue damage as well as to the primary circulatory condition.

DISRUPTION OF HOMES BY DEATH OF PARENT

In excess of 500,000 families in this country are broken each year as a result of the death of husband or wife. According to the Statistical Bulletin of the Metropolitan Life Insurance Company,¹ more than 200,000 of the widows and widowers thus created have left in their care a total of almost a half million dependent children under the age of 18. In 1940, for example, approximately 360,000 wives became widowed by the death of their husbands. About one fourth of these women were under 45 years of age and another fourth fell in the age range from 45 to 54. Almost two fifths of these new widows of 1940 had children under 18 left in their charge; to practically half of the widows who were under 45 years of age there was left the task of caring for more than 150,000 children. In innumerable cases the widows with young dependent children were faced with serious hardships, principally of economic nature. Many undoubtedly had to seek employment and at the same time keep up a home for their children. Some solved their economic problem by remarriage, but the possibilities of this are reduced by the presence of dependent children. The problem of adjustment following the death of the marital partner is not so difficult for men as for women; the widower usually suffers no loss of income to provide for himself and his motherless children. Furthermore, the widower with dependent children is usually strongly inclined toward remarriage, and the obstacles to this are generally not as formidable as those facing the widow with young children. The disruption of homes containing young children by death of either parent represents not only a difficult problem but one which can never be entirely solved.

2. Brown-Séquard, E.: *Compt. rend. Soc. de biol., Arch. de physiol.* 3: 147, 1851; 21: 675, 726, 1889.

1. Govier, W. M., and Greer, C. M.: *Studies on Shock Induced by Hemorrhage: I. Effect of Thiamine on Survival Time*, *J. Pharmacol. & Exper. Therap.* 72: 317 (Aug.) 1941.

2. Levine, R.; Huddleston, B.; Persky, H., and Soskin, S.: *The Successful Treatment of So-Called Irreversible Shock by Whole Blood Supplemented with Sodium Bicarbonate and Glucose*, *Am. J. Physiol.* 141: 202 (April) 1944.

1. Our Annual Tell of Widows and Orphans, *Statistical Bulletin of Metropolitan Life Insurance Company* 25: 3 (May) 1944.

MEDICINE AND THE WAR

ARMY

THE MAYO GENERAL HOSPITAL

The Mayo General Hospital at Galesburg, Ill., was formally dedicated July 10, at which time the following program was presented

Band Concert	Camp Ellis Band
God Bless America	Camp Ellis Band
Accompanied by Post Choir and Audience	
Invocation	Catholic Chaplain Galesburg
Presentation of Building	Colonel Montgomery
Acceptance	Colonel Kraft
Brothers Mayo Army Experience	
Brig Gen Fred W Rankin Chief Consulting Surgeon U S Army	
War Department Policy in Care of Sick and Wounded	
Major Gen H S Aurand Commanding 6th Service Command	
History of Mayo Brothers	
Dr Donald C Balfour, Mayo Clinic Rochester Minn	
Benediction	Post Chaplain
National Anthem	Camp Ellis Band
Post Choir and Audience	

The hospital was named in honor of Drs William and Charles Mayo and is a tribute to their contribution to the medical service in the first world war. It is constructed on a 155 acre site at the north limits of Galesburg, and has seventy-seven buildings of red brick, all except eight of them of one story. A forty-five room administration building and nurses' and officers' quarters are two stories high. It has approximately 1,650 beds. The hospital has its own post office, telephone and telegraph office, post exchange store and lunchroom, laundry, gymnasium, recreation halls and medical and quarter-master warehouses. The hospital was officially opened February 1 and is now treating American soldiers brought back from war zones and those injured in training throughout the country.

The medical officers at present on duty are

Col Henry L Kraft commanding	Capt Francis C Lane
Col Emory B Neff	Capt Albert F J Johannann
Lieut Col Ford K Hick	Capt John C Mason
Lieut Col Jasper K Knott	Capt Stuart W Russell
Lieut Col Philip Lewin	Capt George F Sanders
Major Howard W Berg	Capt Charles M Schroeder
Major Casper M Epstein	Capt Albert O Singleton
Major Ralph H Fouser	Capt Max E Webber
Major Edward A Gill	Capt Norman T Welford
Major Richard L Kinzer	Capt Harold I Weibel
Major Emanuel Krinsky	1st Lieut John A Aita
Major Paul K McConnell	1st Lieut Daniel H Barenbaum
Major Edwin O Niver	1st Lieut Fustace G Hester
Major Martin Patmos	1st Lieut Robert E Lantz
Major Elmer L Rippey	1st Lieut A G Richard Perlman
Capt John J Andrina	1st Lieut Frick H Russow
Capt Howard G Billman	1st Lieut Archer I Sokol
Capt Emanuel G Bloom	1st Lieut Joseph J Speranza
Capt Harold W Christy	1st Lieut Robert G Swanson
Capt Willard Jeffrey	1st Lieut Harry Taylor
Capt John H Johnston	1st Lieut John B Westfall
Capt Willard Z Kerman	

MEDICAL CARE OF AMERICAN WOUNDED IN FRANCE

Major Gen A W Kenner, U S Army, chief medical officer, Supreme Headquarters, Allied Expeditionary Force, recently reported on the high standard and the great effectiveness of the medical care given to American soldiers wounded in France after visits to general hospitals in England, where they had arrived a few days after becoming casualties. Among 561 wounded, comprising two groups visited, not a single death had occurred. Most of them were wounded on D Day. General Kenner's visit was made on June 17, eleven days after D Day, as part of an inspection tour of general hospitals which had received evacuated casualties. Of the 561 men, 311 had gone to one hospital, 250 to another. Of the 311 patients received at the general hospital in England on the fourth day after D Day about half were ambulatory, and many already had been released from the hospital. Only two of the cases were in serious condition on arrival. Sulfonamide or penicillin treatment has been continued in all cases indicated.

The 250 battle casualties at the other hospital had arrived seven days after D Day. None were in shock, and all were reported as making satisfactory progress. None were psycho-neurotic.

From reports of medical personnel at these installations and from personal talks with many patients, General Kenner stated that almost without exception the morale of the wounded was exceedingly high. Great admiration was expressed for the medical service given on the beaches, LST, hospital carriers and ambulance trains.

THE GARDINER GENERAL HOSPITAL

The Gardiner General Hospital in Chicago, the first army hospital to be named after a nurse, was formally dedicated July 9. A feature of the program was the presentation of a portrait of Lieut Ruth M Gardiner, after whom the hospital was named. Lieutenant Gardiner was killed in Alaska in July 1943 in an airplane crash while evacuating wounded soldiers.

The hospital was opened in December 1942 and has a bed capacity of 1,250. It is being used as a military hospital for the Army Air Force's Technical Training Command. Col John R Hall is commanding officer. Col Florence A Blanchfield, superintendent of the Army Nurse Corps and Brig Gen Fred W Rankin were present at the dedication.

Lieutenant Gardiner graduated with the second class of flight nurses from the School of Air Evacuation, Bowman Field Ky, on Feb 18, 1943 and left there for evacuation duty with the Eleventh Air Force in Alaska on April 22. She was the first army flight nurse to be killed in World War II.

U. S HOSPITAL DEDICATED

The new 600 bed Staten Island Area Hospital overlooking Raritan Bay at New Dorp S I., which was recently dedicated, will be used to receive American soldiers wounded in the invasion of Europe, according to a recent announcement made by Major Gen A T Terry, commanding general of the Second Service Command. The hospital will primarily serve soldiers and Wacs stationed in the Staten Island area and members of their families. The hospital comprises forty-seven buildings, including eleven connected one story wards, a post exchange, three operating rooms and six wards in the main building.

ARMY AWARDS AND COMMENDATIONS

Brig Gen Malcolm C. Grow

The War Department recently announced the award of the Distinguished Service Medal to Brig Gen Malcolm C Grow. The following citation accompanied the award: "As surgeon for the Eighth Air Force from May 1942 to January 1944 he was assigned to duty, and without benefit of precedent he conceived, promptly initiated and aggressively carried out a new medical plan for the conservation of fighting strength of combat crews. Through extensive study and research of conditions affecting the health and efficiency of aircrews at high altitudes, he developed and placed in operation a device to protect gunners from wind blast, electrically heated clothing, gloves, boots, hand warmers and casualty bags for the wounded, wind and fire resistant face and neck protectors, and a special combat ration for use on long bombing missions. These innovations resulted in a pronounced decrease of frostbite cases and greatly increased the combat efficiency of the flight crews. To reduce loss of manpower from psychiatric failures in combat, his recommendations for a system of passes and leaves for combat crews was instituted. Rest homes for their exclusive use established and special training given all medical officers.

in the tactical units. As a result, every casualty of this type was returned to duty." Dr. Grow graduated from Jefferson Medical College of Philadelphia in 1909 and entered the service Sept. 6, 1937.

Colonel Franklin T. Hallam

The Legion of Merit award was recently presented to Col. Franklin T. Hallam "for exceptionally meritorious conduct in the performance of outstanding services as surgeon of a corps in the Solomon Islands from Feb. 28, 1943 to March 31, 1944. At Guadalcanal, where he contributed much to decrease substantially the malaria rate, Colonel Hallam was responsible in a considerable measure for the organization and coordination of joint Army and Navy medical services. Later he was of invaluable assistance to the corps commander in planning and executing the initial evacuation program in connection with combat operations at New Georgia. Through his efforts in this campaign, rest camps were established and so expertly operated

that hundreds of patients suffering exhaustion and nervous disorders were rehabilitated and returned to combat units in a minimum of time. Colonel Hallam's services again were distinguished at Bougainville, where he was largely responsible for the efficiency of medical installations and for effective malaria control." Dr. Hallam graduated from Indiana University School of Medicine, Bloomington, in 1925. He was commissioned a first lieutenant in the Indiana National Guard July 27, 1933 and was called to active duty Jan. 17, 1941.

Lieutenant Colonel Stephen L. Gumport

The Legion of Merit was awarded by the War Department recently to Lieut. Col. Stephen L. Gumport (then captain), Medical Corps, U. S. Army, "for exceptionally meritorious conduct in the performance of outstanding services during the period Jan. 25, 1942 to Jan. 28, 1943." Dr. Gumport graduated from Cornell University Medical College, New York, in 1938 and entered the service July 12, 1941.

DEFERMENT OF PREMEDICAL AND MEDICAL STUDENTS

Following are the complete texts of the correspondence between the Honorable A. L. Miller, Member of Congress from the Fourth District, Nebraska, and President Franklin Delano Roosevelt:

My dear President:

I hesitate to bring before your busy office a problem which should be solved by the Director of Selective Service, General Lewis B. Hershey. I refer to General Hershey's order of April 11 which in effect will induct practically all premedical students into the Army by July 1.

I have had several conversations with General Hershey and his staff and it does not seem likely that they are willing to accept the responsibility and order a temporary deferment of men of military age who are now in our colleges as premedical students.

As a physician and surgeon of twenty-five years' experience it is my considered judgment that men now in medical school should be deferred as long as they pass the required grades in college in order that the needs of society in the years to come will be fully met. If no premedical students stay in school it might have a serious effect on the health of this country because of the lack of students graduating four or five years hence. The Army now has absorbed a large number of physicians to the extent that should an epidemic occur it might mean that lives would be lost because there would be a shortage of physicians. There are some four thousand physicians who die each year in the United States.

It seems imperative, Mr. President, that the country take steps to safeguard its future. If the present rule of inducting premedical students stands we will be in imminent danger of undermining the health of this country.

Other countries, including Russia, England and Canada, have recognized the problem and are keeping these premedical students in school. There are only about six thousand premedical students. Surely they would be of more service to the country as trained medical men than serving in the infantry or some other branch of the military. If they are taken from school it may well cripple the vital affairs of science, and the country would lose their medical service. It certainly would not guarantee a safe future for science and for the citizens of the country.

Under the present ruling the draft boards are not permitted to consider a premedical student as exempt from military service.

I am appealing to you and to General Hershey because I feel it is imperative that we not make the blunder of permitting such a drastic regulation to continue in force and thus deprive this country of adequate medical care in the future.

Respectfully yours,
A. L. MILLER, M.C.
Fourth District, Nebraska.

CC: Major General Lewis B. Hershey,
Selective Service Commission,
Washington, D. C.

The President's reply on July 5 was:

I have given careful thought to your letter of June 16 which you asked that I review the Selective Service order which does not permit the deferment of premedical students beyond July 1.

No one is more keenly conscious than I am of the need of maintaining the health of the nation and of making sure that we have an adequate supply of doctors. But in this war the need of the armed forces for young, vigorous men must also be given thorough consideration. The Army and the Navy have presented that need in urgent terms as essential to the winning of the war.

The Inter-Agency Committee on Deferments, which was formed some months ago to advise the Director of Selective Service on deferment of men under 26, gave careful consideration to the case of premedical students. The committee included representatives of all governmental agencies interested in manpower. I am told that this committee recommended that there be no deferment for premedical students who are not in medical school by July 1 of this year.

The committee, I am advised, took into account the fact that none of these premedical students could be of service in the practice of medicine prior to 1948, and that many of them would never practice medicine. The committee also gave attention to the fact that young men who do not come up to the exacting physical standards of the armed forces, as well as young women, are available to become premedical students.

As for the future supply of doctors, we must always bear in mind the ex-servicemen, a considerable number of whom will unquestionably desire to begin the study of medicine. As you know, there are many young men who have served their country in the armed forces and have already been discharged from further service. These men, and the far larger number later to be demobilized, must be given every opportunity in the way of education and training. I am told that the medical colleges are particularly interested in promoting medical education of well qualified ex-servicemen. This plan by the medical colleges in behalf of ex-servicemen has my hearty support.

For these reasons, after thorough consideration, I am unwilling to overrule the recommendation of the Inter-Agency Committee on Deferments in regard to premedical students or to instruct the Director of Selective Service to rescind the ruling that he made when he adopted the committee's recommendation.

I fully appreciate your keen interest in this important subject.

FRANKLIN D. ROOSEVELT

MISCELLANEOUS

ESTABLISHED VETERANS REHABILITATION CENTERS

The Office of War Information recently announced that rehabilitation centers will be established at colleges and universities throughout the United States to provide job counseling and to arrange for vocational training and rehabilitation of disabled veterans of the present war. Brig Gen Frank T. Hines, administrator of veterans affairs and administrator of the retraining and reemployment administration of the Office of War Information, stated that arrangements have been completed for the opening of the first of the proposed centers at the College of the City of New York. Additional centers in the various states will be selected from time to time. Eligible veterans who apply for vocational rehabilitation under the Veterans Administration program will have the assistance of the best qualified vocational counselors in the country at no cost to themselves. The Veterans Administration will provide transportation to the centers, which will be near veterans' homes, meals and comfortable quarters at the centers and medical service at the centers or during subsequent job training periods. Objective aptitude tests will be given the former servicemen to determine their abilities and interests and fit them into the occupations in which they are most likely to succeed. There will also be professional advice on selecting jobs.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service.

(Continuation of list in THE JOURNAL July 1 page 639)

ILLINOIS

Methodist Hospital of Central Illinois, Peoria. Capacity, 240 admissions 5701. Dr. C. S. Woods, Superintendent (interns, October 1).

MICHIGAN

St. Lawrence Hospital, Lansing. Capacity 30 admissions 6897. Sister M. Assisium, Superintendent (interns).

OHIO

Mercy Hospital, Canton. Capacity 265 admissions 8361. Sister M. Euphrasia, Superintendent (interns).

WEST VIRGINIA

Ohio Valley General Hospital, Wheeling. Capacity 330 admissions 5069. Mr. J. S. Fuhr, Superintendent (2 interns, October 1).

COMMUNITIES IN NEED OF PHYSICIANS

The U. S. Public Health Service, Washington, D. C., has recently advised that the program authorizing the relocation of physicians and dentists under Public Law 216 which became operative Dec. 23, 1943, has been terminated by Congress effective June 30, 1944. For those communities which have contributed their share of relocation expense and for which physicians or dentists have been contracted the arrangement will be carried out according to the terms of the contract, from funds obligated for that purpose. Those communities which have submitted their checks for \$300 and for which it has been impossible as yet to locate a physician or dentist will have their monies refunded promptly.

PRICE OF PENICILLIN

Because of many inquiries regarding the maximum price of penicillin now available to civilian hospitals, the Office of Price Administration stated recently that considerable variation in the maximum price of that material exists at the present time. The OPA pointed out that actual selling prices have declined during the last year as production has become greater. One seller's price to civilian hospitals is \$3.15 per hundred thousand O.N.D. units. Since some sellers are supplying the U. S. government at a price much less than this, the OPA said it is reasonable to expect further reductions in the price to civilian hospitals.

PUBLIC HEALTH UNDER HITLER

Owing to present circumstances the figure of tuberculosis victims is continuously increasing, according to Vichy Home Service of March 10, 1944 (France). On Dec. 31, 1938 about 300,000 people suffered from the disease. The figure is now estimated at about 500,000, that is, between 10 and 12 per thousand of the total population. French antituberculosis facilities are unfortunately inadequate. There are some 1,000 welfare centers, 33,000 beds in sanatoriums, 16,000 in preventive centers and 12,500 in special hospitals. It is at present impossible to extend these facilities. The spread of the disease and the means available to fight it had led Dr. Grasset to draw up a rational plan. Its main principles are that tuberculosis is a disease which develops rapidly, so that there must be no delay in diagnosis and that patients who no longer require special treatment should not crowd specialized clinics. Surgeries have to examine patients and make a precise diagnosis within eight days. The patient is then taken to a specialized hospital center, where he is kept under observation for a few weeks and sent to the most suitable place of cure. If the disease is not contagious he is sent to a healthy locality, which may be a prevention center or even his own home. Otherwise he is sent to a sanatorium. Incurable and chronic patients on leaving the sanatorium, are taken to hospitals and curative centers. Clinics may reserve a certain number of beds for patients when there is no danger of their spreading the infection. Patients who have recovered are under observation from special centers, mainly attached to antituberculosis surgeries. Another problem, concerning the resettlement of workers who have recovered, is under consideration and the national company of French railways and the social insurances national institute of hygiene have already achieved a partial solution.

In the Jan. 1, 1944 *Deutsche Arztblatt* (Germany), an article on diabetes and the wartime food supply by Dr. H. A. Heinsen, head of the University Clinic Giessen, concludes "To sum up, we can state that on the whole and with relatively few exceptions it has been quite possible to get our sufferers (from diabetes) to adapt themselves to the normal rations without any considerable extra rations. We should try to do this with every diabetic patient at least while the war is on. The question whether after the war, when presumably the consumption of fats and meat of the diabetic too will considerably increase, the very high carbohydrate contents of wartime rationed food are in all cases advisable must for the present remain unanswered."

According to the *Deutsche Arztblatt* of January 1 (Germany) during the days of the Russian winter there has been a great increase of ecthyma vulgare, which occurs particularly on the calf. It is so frequent that a special name has been given to it. The simultaneous symptoms of a swelling, inflammation and edema, always on the calf, are characteristic of this disease which has become known as "Russische Unterschenkelciterung." The presence of lice and the effect of scratching play an important part, and delousing is essential if a permanent cure is to be effected, as otherwise new swellings will constantly occur.

I. oltischer Beobachter, Vienna edition, February 22 (Germany), states that it is particularly important to supply the doctors with the necessary instruments. In order to be able to direct the production of these instruments more strictly, the Central Committee for Ironware, Tinware and Metalware has issued a new order according to which producers of doctors', dentists' and veterinarians' instruments and implements may manufacture and deliver these articles only if they hold the necessary permits issued by the central committee. No permit is required to carry out repairs to instruments.

An illegal medical publication in France appeals to doctors not to comply with the wish of the German occupying authorities, who desire to send 5,000 French doctors to Germany, according to *Stenska Dagbladet* of February 15.

ORGANIZATION SECTION

THE SERVICEMEN'S READJUSTMENT ACT OF 1944

An Abstract Prepared by the

Bureau of Legal Medicine and Legislation,
American Medical Association, Chicago

The G. I. Bill of Rights (S. 1767) was approved by the President on June 22 as Public Law 346. Seventy-Eighth Congress. It contains six titles.

TITLE I

Title I deals generally with hospitalization claims and procedures, aid by veterans' organizations and the review of discharges or dismissals from the armed forces.

It declares the Veterans' Administration to be an essential war agency, entitled to priorities second only to the War and Navy departments, such priorities so far as they relate to materials being extended to any state institution to be built for the care or hospitalization of veterans.

It authorizes an appropriation of \$500,000,000 for the construction of additional hospital facilities for veterans and sanctions agreements between the Administrator of Veterans' Affairs and the Secretaries of War and Navy for the mutual use or exchange of use of hospital facilities.

It provides for the detail of commissioned, appointed or enlisted personnel from the armed forces to the Veterans' Administration for periods not extending beyond six months after the termination of the war. It contemplates procedures to assure veterans of an opportunity to file claims for benefits.

It makes available adequate training in the use of prosthetic appliances in a service or a Veterans' Administration hospital "or by outpatient treatment, including such service under contract."

It sets up machinery for the review of certain discharges or dismissals from service other than discharges by reason of the sentence of a general court martial.

TITLE II

Title II provides a program for the education of veterans following separation from service.

Eligibility for Benefits—Persons who served in the active military or naval services on or after Sept. 16, 1940 and prior to the end of the war for the prescribed length of time and who shall have been released or discharged under conditions other than dishonorable will be entitled to the benefits of this title.

Veterans must have served ninety days or more or must have been released or discharged from active service by reason of an actual service incurred injury or disability. The ninety days of required service must be in addition to a (a) any period in which the person was assigned for a course of educational training under the Army specialized training program or the Navy college training program which course was a continuation of his civilian course and was pursued to completion, or (b) any period served as a cadet or midshipman at one of the service academies.

An otherwise eligible veteran over 25 years of age must show that his education or training was impeded, delayed, interrupted or interfered with by reason of his entrance into service in order to qualify for the additional education or training made available under this title. A veteran 25 years or younger is not required to make any such showing. His education or training is presumed to have been impeded, delayed, interrupted or interfered with.

An otherwise eligible veteran will be entitled too to a "refresher or retraining course" if he so desires.

Onset and Termination of Courses—A course must be initiated not less than two years after either the date of the veteran's discharge or the end of the war, whichever is later. No education or training will be afforded beyond seven years after the end of the war.

Length of Courses—An eligible veteran will be entitled to education or training or a refresher or retraining course for a period of one year, or the equivalent thereof in continuous part time study, or for such lesser time as may be required for the course of instruction chosen by him.

On completion of the one year course, other than a refresher or retraining course, the veteran will be entitled to an additional course not to exceed the time he was in service after Sept. 16, 1940 and before the end of the war and exclusive of any period he was assigned for a course of education or training under the Army specialized training program or the Navy college training program, which course was a continuation of his civilian course and was pursued to completion, and exclusive of any period he was assigned as a cadet or midshipman at one of the service academies.

The total period of education or training may not exceed four years.

Educational Institutions—The veteran may select any approved institution to attend which will agree to accept or retain him. For reasons satisfactory to the Administrator of Veterans' Affairs the veteran may change a course of instruction. If the progress of the veteran is unsatisfactory, the Administrator may terminate the course.

A list of approved institutions will be established in the following manner:

(1) The Administrator of Veterans' Affairs will be required from time to time to secure from the appropriate agency of each state a list of educational and training institutions including industrial establishments which are qualified and equipped to furnish education or training, including apprenticeship and refresher or retraining courses.

(2) the Administrator will be authorized to add additional institutions to such lists which in his judgment are qualified to participate in the program, and

(3) the institutions designated by the several appropriate state agencies plus the institutions designated by the Administrator himself "shall be deemed qualified and approved to furnish education and training to such persons as shall enroll under this part."

Educational or Training Institutions Defined—The term "educational or training institutions" is defined to include:

all public or private elementary, secondary and other schools furnishing education for adults, business schools and colleges, scientific and technical institutions, colleges, vocational schools, junior colleges, teachers' colleges, normal schools, professional schools, universities and other educational institutions and shall also include business or other establishments providing apprenticeship or other training on the job, including those under the supervision of an approved college or university or any state department of education or any state apprenticeship agency or state board of vocational education or any state apprenticeship council or the Federal Apprenticeship Training Service established in accordance with Public Number 176, Seventy-Fifth Congress or any agency in the executive branch of the federal government authorized under other laws to supervise such training.

Payment to Educational or Training Institutions—The Administrator will pay to each institution for each veteran enrolled in a course of education or training: (1) the customary tuition and (2) such laboratory, library, health, infirmary and other similar fees as are customarily charged.

The Administrator may pay for books, supplies, equipment and other necessary expenses, exclusive of board, lodging, other living expenses and travel, as are generally required for the successful pursuit and completion of courses by other students.

Payments by the Administrator may not exceed, with respect to any veteran, the sum of \$500 for "an ordinary school year."

Maintenance Allowances.—While enrolled in and pursuing a course, a veteran will be paid a subsistence allowance of \$50 a month if without dependents and \$75 a month if he has a dependent. Such a person attending a course on a part time basis and a person receiving compensation for productive labor performed as a part of their apprentice or other training on the job at institutions, business or other establishments will be entitled to receive such lesser sums, if any, as subsistence or dependency allowances as may be determined by the Administrator.

Rehabilitation of Veterans Entitled to Educational Benefits.—Any veteran entitled to vocational rehabilitation under Public Law 16, Seventy-Eighth Congress, who is also entitled to educational training under the Servicemen's Readjustment Act of 1944, may elect which benefit he desires.

Federal Control Over Educational Institutions.—This title provides that:

"No department, agency or officer of the United States, in carrying out the provisions of this part, shall exercise any supervision or control, whatsoever, over any state educational agency, or state apprenticeship agency, or any educational or training institution."

Excepted from the foregoing proscription are federal educational and training institutions over which federal jurisdiction is authorized by existing law.

Utilization of Existing State and Federal Facilities and Services.—The Administrator of Veterans' Affairs will be authorized to administer title II and must, so far as he finds it practicable, utilize existing facilities and services of federal and state departments and agencies on the basis of mutual agreements with them. He may promulgate rules and regulations necessary to carry out the purposes of the title.

Vocational Guidance for Beneficiaries.—The Administrator may arrange for the educational and vocational guidance of beneficiaries undergoing courses under this title. He may make available information as to the need for general education and for trained personnel in the various crafts, trades and professions, utilizing information, to the extent practicable collected by other federal agencies.

Medical and Hospital Care for Beneficiaries.—The appropriations made available to the Veterans Administration for the medical treatment and hospitalization of veterans generally are made available for persons undergoing courses under the title.

Books, Supplies and Equipment.—Any books, supplies or equipment furnished a veteran will be considered as having been released to him. If because of fault on his part a veteran fails to complete his course he may be required to return any books, supplies or equipment not actually expended or to pay the reasonable value thereof.

TITLE III

Title III relates to loans for the purchase or construction of homes, farms and business property. It sets up machinery whereby the Veterans Administration will guarantee loans made to veterans, provided the loans are to be expended for specified purposes. Those purposes are:

(1) The purchase, construction, alteration, repair or improvement of property to be occupied by the veteran as his home, or the payment of delinquent indebtedness, taxes or special assessments on residential property owned by the veteran and used by him as a home;

(2) the purchase of land, buildings, livestock, equipment, machinery, or implements, or the repair, alteration or improvement of any buildings or equipment, to be used in farming operations conducted by the veterans; and

(3) the purchase of any business, land, buildings, supplies, equipment, machinery, or tools to be used by the applicant in a gainful occupation, other than farming.

The aggregate amount guaranteed by the Veterans Administration may not exceed \$2,000 in a particular case nor 50 per cent of the loan negotiated for the purposes indicated. Provision is made for the guaranteeing of a second loan under specified conditions.

Application for the guaranty of a loan must be made within two years of separation from service or within two years of the termination of the war, whichever is later, but may not be filed later than five years after the war.

Interest for the first year on the guaranteed part of the loan will be paid by the Veterans Administration, and thereafter the interest on the guaranteed part of the loan may not exceed 4 per cent. The guaranteed part of the loan is to be repayable in twenty years.

TITLE IV

Title IV contemplates a job counseling and employment placement service for veterans to be operated under the United States Employment Service with the cooperation and assistance of the Veterans' Placement Service Board, to consist of the Administrator of Veterans' Affairs as chairman, the director of the National Selective Service System, and the administrator of the Federal Security Agency. This board will determine all matters of policy relating to the administration of the Veterans' Employment Service of the United States Employment Service.

It is contemplated that the United States Employment Service will assign to each state a veterans' employment representative who, in cooperation with the public employment service staff in the state, will be functionally responsible for the supervision of the procedures undertaken to effect the employment of veterans.

TITLE V

Title V provides readjustment allowances for former members of the armed forces who are unemployed.

Readjustment allowances will be paid, subject to the conditions set forth in detail in the title, for each week of unemployment, not to exceed a total of fifty-two weeks, which (1) begins after the first Sunday of the third calendar month after June 22, 1944 and (2) occurs not later than two years after separation from the service or the end of the war, whichever is the later date. No allowances will be paid for any week commencing more than five years after the end of the war.

The number of weeks of allowances to which a veteran will be entitled, subject to the fifty-two week limit, will be determined by the length of service of the veteran.

The allowance payable will be \$20 a week less that part of the wages paid to the veteran for such week in excess of \$3.

To be eligible for readjustment allowances, a veteran must (a) reside in the United States, (b) be completely unemployed or, if partially unemployed, must not have received wages in excess of \$23 a week, (c) be registered with and reporting to a public employment office and (d) be able to work and available for suitable work, but no veteran will be considered ineligible in any period of continuous unemployment because of inability to show that he is able to work and available for suitable work if such failure is due to an illness or disability which occurs after the commencement of such period.

An otherwise eligible veteran who is self employed for profit in an independent establishment, trade, business, profession or other vocation will be eligible for readjustment allowances if he has been fully engaged in such self employment and if his net earnings have been less than \$100 in the previous calendar month. Such a veteran will be entitled to receive the difference between \$100 and his net earnings for such month, subject to the \$20 a week limitation and the time limit applicable to unemployed veterans generally.

TITLE VI

Title VI contains general administrative and penal provisions.

WASHINGTON LETTER

(From a Special Correspondent)

July 10, 1944.

The Public Health Service Act

An attack on the tuberculosis problem on a national scale is provided for in the Public Health Service Act (signed by the President on July 3). The act streamlines the administration of the Public Health Service, bringing together in compact and orderly arrangement substantially all existing laws affecting the service, eliminating many outmoded laws and effecting revisions dictated by operating experiences. Its new provisions include authority to make grants-in-aid to research institutions for any disease, just as the National Cancer Act of 1937 provides for cancer research; expansion of the federal-state cooperative public health programs, and establishment of a national tuberculosis control program patterned after the venereal disease control program.

The provisions of the bill for investigation and control of tuberculosis are understood to be incorporated in the Public Health Service Act.

The new law retains all the important duties of the Public Health Service which have been granted to it by Congress in legislation enacted in the past fifty years, such as medical and hospital care of American Merchant Marine seamen, the United States Coast Guard and other federal beneficiaries, the National Quarantine Service, scientific research, control of biologic products, care of leprosy patients and narcotic drug addicts and assistance to the state and territorial health departments. The purpose of the tuberculosis control bill was to enable the Surgeon General of the Public Health Service to seek more effective measures of prevention, treatment and control of tuberculosis, to assist states, counties, health districts and other political units of states in establishing and maintaining such measures and to control the spread of tuberculosis in interstate traffic.

The Public Health Service Act of 1944 as approved by the House and Senate makes it possible to extend a direct attack on tuberculosis. The act authorizes the establishment of a tuberculosis control program in the Public Health Service with the responsibility of administering grants-in-aid to the state health departments, and of conducting demonstrations and research leading to eradication of the disease. The act raises the ceiling of federal appropriations for grants-in-aid to the states under title VI of the Social Security Act from \$11,000,000 to \$20,000,000 annually. It is explained in Washington that the Public Health Service will now be able to recruit and commission in the regular corps younger officers who otherwise would serve as interns in the marine hospitals. The act also permits commissioning of qualified personnel in professions other than medicine, dentistry and engineering—specialists in such fields as entomology, chemistry and zoology.

Under provisions of the new law, the Nursing Corps of the Public Health Service may be commissioned just as the nurses of the Army and Navy are commissioned. The nurses not only staff the hospitals, dispensaries and treatment centers operated by the Public Health Service but also act as public health nursing consultants to state health departments and administer the nurse education program. Other sections of the new law will give to commissioned personnel of the Public Health Service in wartime substantially the same benefits and privileges as are provided for officers of the Army and Navy. The service now includes four major administrative units in its organization. They are the Office of the Surgeon General, the National Institute of Health (Bureau of Scientific Research), the Bureau of State Services and the Bureau of Medical Services. The staff of the Surgeon General now includes a deputy surgeon general and three assistant surgeons general in charge of the three bureaus. In addition, staff officers with the rank of Assistant Surgeon General are assigned to the administration of dental and sanitary and engineering activities respectively. The medical director of the United States Coast Guard has the rank of Assistant Surgeon General on the staff of the Surgeon General.

The Public Health Service was established in 1893 as an agency to provide medical and hospital care for members of the

American Merchant Marine. It is one of the oldest of federal agencies and has been a constituent of the Federal Security Agency since 1939. The service was 68 years old when Pasteur demonstrated germ causation of disease. It was the first federal agency authorized to undertake scientific research on diseases of mankind and conditions propagating their spread. Acts of Congress in 1878, 1890, 1893 and 1906 gave it authority to prevent introduction of epidemic diseases into this country from abroad and to prevent the interstate spread of communicable diseases. Fundamental reorganization laws expanding the functions and strengthening the administration of the service have been enacted several times. In 1889 it was organized along military lines, when provision was made for establishment of a corps of commissioned officers with grades, ranks and rates of pay like those of the medical corps of the U. S. Army and Navy. In 1902 the service was given responsibility for the control of biologic products (vaccines, serums, toxoids and the like). This law required that the service establish standards for their manufacture and that manufacturers be licensed by the service for the sale of biologic preparations in interstate commerce.

Scientific research has developed from a small laboratory to a major bureau, the National Institute of Health, which occupies modern laboratories in Bethesda, Md. Authorized by Congress in 1930 to extend research activities to any disease or condition affecting the people, the institute conducts investigations on infectious diseases, cancer, zoology, physiology and industrial toxicology. The National Cancer Institute, established by Congress in 1937, is a major division of the National Institute of Health.

From earliest days, the Public Health Service has cooperated with state and local health agencies and with voluntary organizations. In 1935 title VI of the Social Security Act placed administration of the federal-state cooperative public health program in the Public Health Service. This involves the allotment of grants-in-aid to state health departments, the provision of consultant services and technical assistance to the states.

Tuberculosis Division

The establishment of a tuberculosis control division in the Public Health Service was announced on July 10 by Surg. Gen. Thomas Parran. Dr. Herman E. Hilleboe, in charge of the Public Health Service tuberculosis control activities since 1942, was named chief. The tuberculosis division will be within the Public Health Service Bureau of State Services, headed by Dr. L. R. Thompson. Dr. Parran's order was approved by Paul McNutt, Federal Security Administrator.

The functions of the new division will be (1) developing and effecting means for the prevention, treatment and control of tuberculosis; (2) assisting states, counties, health districts and other political subdivisions of the states in establishing and maintaining adequate measures for the prevention, treatment and control of such diseases; (3) preventing and controlling the spread of tuberculosis in interstate traffic and any other activities with respect to the prevention, treatment and control of tuberculosis which may be authorized to be performed by the Public Health Service.

The sum of \$10,000,000 was authorized in the act of 1944 for this new work and will be available as soon as funds are appropriated.

Dr. Hilleboe was born in West Hope, N. D., in 1905 and was educated at the University of Minnesota Medical School, where he received the B.S. and M.D. degrees, and at the Johns Hopkins School of Hygiene and Public Health, where he received a Master of Public Health degree. He is a member of a number of local, state and national societies and health organizations, including the National Tuberculosis Association, on whose board of directors and Medical Research Council he serves. He entered the Public Health Service as a passed assistant surgeon in the regular commissioned corps in 1931, and he made special studies of tuberculosis control in the Public Health Service and Scandinavian countries, France and England in 1939. When he returned from England he was made chief of the medical unit of the Minnesota Division of Social Hygiene. He served there till 1942, when he was appointed medical officer in charge of the Public Health Service tuberculosis control section of the state relations division. He was promoted to the rank of senior surgeon in 1943.

MEDICAL ECONOMIC ABSTRACTS

OREGON PHYSICIANS' SERVICE

Medical care on the job is the responsibility of the employer under the State Industrial Accident Commission. Recently this responsibility has been extended to cover occupational disease. Originally this care was furnished largely by individual plant systems or by entering into a medical contract. For some years a high percentage of such contracts has been with medical societies, principally with the Oregon Physicians' Service.

The Oregon Physicians' Service was incorporated as an Oregon corporation on Dec. 6, 1941, although no business was transacted until June 1942. At the time of incorporation a number of local medical service bureaus had been established by groups in different parts of the state and with the approval of the various medical societies. There was no existing organization, however, to take care of prepaid medical contracts covering migratory workers or groups in sections of the state lying between the local bureaus, and the first function of the Oregon Physicians' Service was to fill these gaps in coverage wherever asked to do so. Many of the local bureaus have since merged with the Oregon Physicians' Service.

The original capital was provided by the Oregon State Medical Society, which, under a trust agreement, purchased the entire issue of Oregon Physicians' Service voting stock and placed it in the hands of eleven trustees named by the council.

In general, the type of medical and hospital contract written by the Oregon Physicians' Service conforms to the usual hospital association contract that has been written in Oregon for several years to cover off the job illness. It is a contract entered into with the employer, who acts on behalf of and with the consent of the employee. The principal services offered are medical and surgical care, hospital care, special nursing, x-ray and physical therapy, ambulance and limited dental care. No prescriptions are provided. Limitations are placed on the care of certain types of cases; also a maximum of one year on medical care and six months of hospital care on any 1 case. This standard type of contract is offered to employed persons only at the rate of \$2.50 per month. Approximately 17,600 persons were under such contracts on June 30, 1943.

Special contracts have been written with the two Kaiser shipyards in Oregon, which provide that the Oregon Physicians' Service shall cover medical costs only. Hospitalization of the shipyard employees is provided by the Blue Cross plan. The total premium for this coverage is 60 cents per week, of which the Oregon Physicians' Service receives 45 cents for the medical coverage; 43,100 workers were under the "M & H plan" on June 30, 1943.

The Oregon Physicians' Service also entered into an agreement with the Farm Security Administration to provide medical and hospital care to families eligible for standard loans under its settlement program in the Snake River area of eastern Oregon. This coverage was first written for an annual rate of \$40 per family, but this was increased to a \$50 rate in 1943 to provide sufficient funds to warrant continued participation by the Oregon Physicians' Service staff members. The limited experience had with this type of coverage is inconclusive, but without some selection of risks it is evident that a broad medical and hospital coverage for families will be rather unsatisfactory to the physicians for at least the first year. These families were unable to pay for their medical care as private patients prior to their coming under the Farm Security Administration program (many of them had come from areas of extreme under-privilege) and hence there was an unusual amount of needed medical service, often involving surgery, that required attention whenever later sickness arose in these people. It is anticipated that the coming year will produce improved returns to the participating physicians.

The total number of persons under coverage by the Oregon Physicians' Service at the end of June 1943 was approximately 83,000, with an additional 22,000 covered by its affiliates, making a total of about 105,000 under coverage directly supervised by organized medicine out of a total prepaid coverage in the state estimated to be some 150,000 people.

The physicians on the staff of the Oregon Physicians' Service number 678 in active civilian practice; an additional 173 are in military service. This total of 678 represents 95 per cent of the active membership of the Oregon State Medical Society and 85 per cent of all licensed medical practitioners in Oregon. The only requirement for admission to the Oregon Physicians' Service staff is that the physician be a member of the state medical society or eligible therefor.

Wherever an approved medical service bureau is already in operation and wishes to preserve its separate entity, the Oregon Physicians' Service endeavors to assist it in any feasible manner, and a genuine and friendly cooperation has been built up between such bureaus and the Oregon Physicians' Service.

The component local societies largely govern the activities of the Oregon Physicians' Service in their respective districts through their own supervisory committees. If desired, each district may establish a separate "pool," so that the Oregon Physicians' Service contracts written in that district will inure to the benefit of the staff physicians in that area; six such pools were in operation on June 30. Those districts not choosing to localize their Oregon Physicians' Service contract practice have been grouped together in a "statewide" pool.

The Oregon Physicians' Service does not enter any county until prior authorization has been received from that county society. All but one of the counties of Oregon (other than the five previously named which have independent approved organizations of their own) have requested the Oregon Physicians' Service to enter into contracts with their employed groups, and mergers have been completed or are under way.

The rate of expansion in Oregon Physicians' Service activities is only partially reflected in the income figures. During the twelve months, 489 contracts were acquired either by merger with existing medical service bureaus or by new enrollments. These contracts represented a net increase of 48,800 members, 40,000 of whom were shipyard employees.

Gross earned income for the year was \$800,200. Of this amount \$576,973 was expended on direct medical and hospital care of patients, \$104,595 was expended for first aid service which directly benefited the subscribers and \$118,128 was expended for administrative expenses. It is noteworthy that member physicians received 53.2 per cent of income in the form of fees for services, and an additional 5.7 per cent was paid to nonmember physicians handling emergency cases; the medical profession thus received 58.9 per cent of each revenue dollar. Administrative costs amounted to 14.8 per cent of earnings, a relatively low percentage considering that the first year of any business calls for abnormally heavy costs in this category.

The huge influx of war industries in the metropolitan area of Portland has created a number of special problems in the medical field. One such problem is the Vanport City Housing Project, designed to accommodate 40,000 persons. As the majority of the workers living in Vanport are employees of the Kaiser shipyards, the Oregon Physicians' Service was asked to operate the hospital erected there as a part of its function of providing medical care to the Kaiser employees. The hospital was opened on a limited scale on Aug. 1, 1943 and is still unable to admit certain types of cases because of delays in receiving certain necessary equipment. This equipment is on order and is expected to be installed and in use in a few weeks. The hospital can then render adequate service to Vanport City.

The heavy concentration of workers in the Kaiser yards made it necessary to operate fairly elaborate first aid stations in those yards. Over 2,000 persons are treated daily at these first aid stations. The Oregon Physicians' Service employs a staff of 150 at these stations, including thirteen full time salaried physicians. The sizable cost of operating these stations is divided between the Oregon Physicians' Service and the State Industrial Accident Commission in the ratio of treatments rendered for industrial and nonindustrial cases in which reports are made to the stations. Approximately 63 per cent of all cases are industrial injuries; hence the commission bears that proportion of the first aid station costs.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Personal.—Dr. James W. MacQueen, medical director of the Hillman Hospital, Birmingham, has been appointed in charge of the Hillman and Jefferson hospitals. Dr. MacQueen, who had been superintendent of the Hillman Hospital, was named to the new position when both county hospitals were merged. —Dr. Elisha M. Moore, Livingston, has been appointed health officer of Autauga County.

CALIFORNIA

William Greulich Named Professor of Anatomy.—William Walter Greulich, who received his doctor of philosophy degree at Stanford University in 1934, has been appointed professor of anatomy there, effective at the start of the summer quarter. Since 1940 Dr. Greulich has been professor of physical anthropology and anatomy and director of the Brush Foundation at Western Reserve University School of Medicine, Cleveland.

New School of Veterinary Medicine.—The University of California plans to establish a school of veterinary medicine at Davis. Appropriation of \$500,000 has been made by the legislature for the project and, according to *Science*, an additional \$500,000 is expected from the postwar building funds provided by the legislature. The department will be set up in the college of agriculture, the faculty to be drawn not only from the department of veterinary science but from other departments, including the department of agriculture and the medical school.

ILLINOIS

Portrait of Dr. Carlson.—A feature of the alumni banquet of Augustana College, Rock Island, was the presentation to the college of a portrait of Dr. Anton J. Carlson, emeritus professor of physiology, University of Chicago School of Medicine. The portrait is the work of Carl Tolpo. Dr. Carlson graduated at Augustana in 1898.

Chicago

John Mannix Named to Chicago Plan for Hospital Care.—John R. Mannix, formerly executive director of Michigan Hospital Service, Detroit, recently became executive director of the Chicago Plan for Hospital Care.

Dentist Leaves Estate to Blind.—Charles J. Tibbets, dentist, who died May 23, bequeathed \$1,000 of his \$25,000 estate to Seeing Eye, Inc., Morristown, N. J., and the remainder to the American Foundation for the Blind, Inc., New York.

Dr. Routley Delivers Root Lecture.—The William W. Root lecture of Alpha Omega Alpha was delivered in Chicago, June 15, by Dr. Thomas C. Routley, Toronto, Ont., Canada, on "Newer Phases of Medical Education." At the meeting of the society in February, honorary membership was conferred on Norman T. Kirk, Surgeon General of the Army, Ross T. McIntire, Surgeon General of the Navy, and David N. W. Grant, Air Surgeon.

Physician Sentenced in Stolen Car Case.—Dr. Lawrence T. Browning was sentenced to three years in prison June 22 by Federal Judge Luther M. Swygert in South Bend, Ind., newspapers report. When arrested the physician gave his address as 634 South State Street, Chicago. He was said to be arrested on a charge of driving a stolen automobile across the state line. Newspapers reported that agents of the federal bureau of investigation arrested him after he tried to sell stolen medical equipment and charged that he had driven two stolen automobiles across state lines. On June 14 he was placed on probation. Four days later he was arrested again in Valparaiso, Ind. He admitted that he had stolen another car in Chicago. He was sentenced for driving this car to Indiana and for driving another stolen car from South Bend to Niles, Mich.

KENTUCKY

Personal.—Dr. Charles E. Youmans has been appointed medical superintendent of the State Institution for the Feeble-minded, Frankfort, to succeed Dr. Lynn D. Adams, resigned. —Dr. Don E. Wilder, Grayson, recently resigned as health officer of Carter County.

New Health Center Dedicated.—A new building housing the city-county health center of Hopkinsville and Christian County was dedicated June 8. The unit was erected with the assistance of \$60,000 contributed by the government. Dr. Philip E. Blackerby, Louisville, state health commissioner, gave the principal address. The unit is under the direction of Dr. Robert H. English.

The Gross Lecture.—Dr. Geza de Takats, associate professor of surgery, University of Illinois College of Medicine, Chicago, delivered the fifth Samuel D. Gross Lecture at the University of Louisville School of Medicine, May 23, on "The Causalgic State in Peace and War." The lectureship is sponsored annually by the University of Louisville chapter of Phi Delta Epsilon.

MARYLAND

New Officers of Medical Board.—Dr. Edward P. Thomas, Frederick, was on June 6 chosen president of the Board of Medical Examiners of Maryland and Dr. Erasmus H. Kloman, Baltimore, was named vice president. Dr. John T. O'Mara, Baltimore, was reelected secretary-treasurer. Dr. Edward M. Hanrahan Jr., Baltimore, was recently elected a member of the board to succeed Dr. Thomas R. Chambers, Baltimore, whose term expired.

Personal.—Elmer V. McCollum, Ph.D., professor of biochemistry at the School of Hygiene and Public Health of the Johns Hopkins University, Baltimore, has been elected a foreign member of the Swedish Academy of Sciences. —Dr. George W. Corner, director of the department of embryology, Carnegie Institution, Baltimore, was awarded the honorary degree of doctor of science during the recent commencement of the University of Rochester, N. Y.

Physician to Hold New Welfare Position.—On April 14 the board of estimates approved the establishment in the Baltimore Department of Welfare of a new position of assistant director of welfare for medical care. *Baltimore Health News* reports that a qualified physician will be selected for the position, subject to the regulations of the city service commission. After his appointment he will be designated, for liaison purposes, deputy commissioner of health in the city health department.

MASSACHUSETTS

Fellowships in Clinical Nutrition.—The Nutrition Foundation has awarded grants to Harvard Medical School, Boston, to support fellowships in clinical nutrition, effective through the years 1944, 1945 and 1946. The fund will be administered under the supervision of Dr. Fredrick J. Stare, assistant professor of biochemistry and nutrition. Two types of training are provided for by the fellowship fund: postdoctorate training in medicine and advanced training in medical nutrition for dietitians.

Alumni Activities at Boston University.—On April 30 the Alumni Association of Boston University School of Medicine brought out the first copy of a bulletin designed for alumni members in service. The publication was financed by the alumni association and will be issued once a year. At the annual meeting of the association on May 15 Dr. Eleanor B. Ferguson-Howard, Boston, who graduated in 1920, was chosen president, the first time in the history of the medical school that a woman has been elected to the office. She succeeds Dr. Clifton B. Leech, Providence, R. I. Other officers include Drs. Leon W. Crockett, Boston, and Roger M. Burgoyne, Winchester, vice presidents; Dr. Frank E. Barton, Newton, secretary, and Dr. Kenneth Christophe, Needham, treasurer.

MICHIGAN

Clifford Young Dies.—Clifford C. Young, D.P.H., Lansing, director of laboratories of the Michigan Department of Health since 1918, died June 5.

Ninety-Three Years of Age.—Dr. Homer P. Mix, Riverside, who was born in 1851 and who has practiced medicine for sixty-five years, is still practicing medicine and is considered the oldest practicing physician in the state. According to the *News-Palladium*, Dr. Mix, known as the "Old Timer," delivered a 12 pound daughter to a local family, June 20.

Property Available for Cancer Laboratory.—The Detroit Institute of Cancer Research has purchased from the Detroit Edison Company the Detroit Edison Club property at the northeast corner of St. Antoine and Frederick streets. It will remodel the two buildings there as a temporary cancer research laboratory and will make the grounds available as a playground for the children of the neighborhood. It was announced June 25. The site was chosen because it is on that of the proposed Medical Science Center of Wayne University, with which the Detroit

hopes to cooperate closely in cancer research. Eventually the buildings will be replaced with new structures. Dr. Rollin H. Stevens, Detroit, is president of the institute, which was established in November 1941.

MISSISSIPPI

New Officers of Hospital Association.—Dr. William H. Brandon, Clarksdale, was elected president of the Mississippi State Hospital Association at its annual meeting in Jackson in May, succeeding Dr. George E. Adkins, Jackson. Other officers include Dr. Henry Boswell, Sanatorium, vice president, and Miss Grace Golden, Vicksburg, secretary-treasurer. The society voted to hold its next annual meeting separate from the state medical association.

State Board Commended for Care of Public Health.—The Jefferson Davis County Committee of One Hundred, composed of civic minded Negro citizens of the county, recently paid tribute to the Mississippi State Board of Health and its director, Dr. Felix J. Underwood, Jackson, for the effective health program carried on for the benefit of all people. The letter acknowledging the tribute was sent to Dr. Underwood by A. L. Johnson for the Jefferson Davis County Committee. Mr. Johnson stated that his organization was "especially proud of the local staff because its members are thoroughbreds without exception, competent, efficient, devoted to duty and possessed with a keen appreciation of human personality." This agency, he said, is an endorsement of the American way of life and points the way for future action. The Committee of One Hundred is an organization for the general improvement of the conditions of the colored people in Mississippi.

NEW HAMPSHIRE

Dr. Frechette Returns as State Health Officer.—Alfred L. Frechette, surgeon, U. S. Public Health Service, who recently returned from Africa, was expected to resume his activities as state health officer July 1, according to the *New Hampshire Health News*.

NEW JERSEY

Dr. Arthur Richardson Joins Squibb Institute.—Dr. Arthur P. Richardson, professor and head of the department of pharmacology, University of Tennessee College of Medicine, Memphis, has been appointed head of the division of pharmacology of the Squibb Institute for Medical Research, New Brunswick, effective October 1. Dr. Richardson will succeed Dr. Harry B. Van Dyke, who has accepted an appointment as head of the department of pharmacology at Columbia University College of Physicians and Surgeons. Dr. Richardson graduated at Stanford University School of Medicine, San Francisco, in 1937. He subsequently served on the staff of Stanford, as fellow for the National Research Council at Johns Hopkins University and as a member of the faculty of the University of Tennessee College of Medicine.

Fined for Advertising Tuberculosis Cure.—Emile Carpentier, Hillsdale, has been penalized \$15,000 for violating the Federal Trade Commission order directing him to discontinue advertising a preparation as a cure for tuberculosis, the *New York Times* reported June 15. It was stated that the judgment was the largest ever ordered in a civil penalty suit brought by the department of justice for violation of the federal trade commission cease and desist order. According to the report, in February 1938 the commission directed Carpentier to discontinue representing that a product sold as "T. B. Compound" had therapeutic or remedial value. Three counts alleging separate violations of the order were filed in the U. S. District Court in Trenton and a maximum penalty of \$5,000 was imposed on each count. It was stated that Carpentier traded under the name of "Mrs. E. Carpentier."

Dr. Barkhorn Receives Ill Award.—On May 18 the Academy of Medicine of Northern New Jersey presented its Edward J. Ill Award to Dr. Henry C. Barkhorn for his many services to the academy. The citation accompanying the award identifies Dr. Barkhorn as a "man of wisdom and understanding, talented surgeon, eminent citizen." Dr. Barkhorn served as treasurer of the academy from 1922 to 1935. Since then he has been vice president, president, chairman of the public health and education committee and since 1942 chairman of the board of trustees. He was president of the Essex County Medical Society in 1930 and has been active in the functions of the state medical society, serving fourteen years as chairman of its publication committee. During the absence in service of the editor of the state medical journal Dr. Barkhorn has edited it in addition to the *Bulletin* of the Essex County Medical Society.

NEW YORK

Physician Observes Ninety-Third Birthday.—Dr. Frederick N. Winans, Franklin, recently observed his ninety-third birthday. Dr. Winans graduated at Columbia College College of Physicians and Surgeons in 1874.

Schools and Theaters Closed in Paralysis Ban.—On July 3 eight playgrounds were closed for one week by Dr. Leo M. Michalek, health officer of Lackawanna, as a precautionary measure against the spread of infantile paralysis, according to the *New York Times*. Four cases had been reported in the Lackawanna area, 2 in the city and 1 each in the villages of Blasdell and Hamburg. Dr. Richard G. Taylor, health officer of the town of Hamburg, ordered all motion picture theaters closed, it was stated.

Personal.—Dr. David W. Park resigned his position as superintendent of Potsdam Hospital, Potsdam, effective July 1, to become field representative of the American College of Surgeons. For the time being he will continue to live in Potsdam.—Dr. Leo J. Palmer, Elmira, has retired as superintendent of the Elmira reformatory hospital, a position he had held since Dec. 1, 1939.—Dr. David E. Fraser has been appointed health officer of Lyndonville, succeeding Lieut. Julius J. Laver, M. C.—Dr. John E. Wattenberg, a member of the Cortland Board of Education for five years, has been elected president of the board.—Dr. Willard H. Veeder, Rochester, has been appointed superintendent of the Craig Colony for Epileptics at Soneya.

Advisory Council Named to Administer Workmen's Compensation Law.—On June 25, Governor Dewey appointed a state industrial council of nine members, reduced from fifteen, under a reorganization as a result of the state investigation into administrative aspects of the workmen's compensation law. The council's function is that of an advisory body to the state industrial commissioner on all matters relating to the department of labor, which, in turn, administers workmen's compensation. Under the reorganization act, which requires three representatives each for employees, employers and the medical profession, membership of the former council was terminated on June 1. The new unit includes employee and employer representatives. In addition, medical representatives listed are Albert W. Bailey, osteopath, Schenectady; Dr. Connie M. Guion, New York City, and Dr. Nathan B. Van Etten, Bronx. Dr. Guion and Dr. Van Etten are new appointees, the others having been members of the former council. The reorganization law provides that physicians on the council shall function also as a medical appeals unit which shall "consider all matters connected with the practice of medicine, prescribe rules for the medical practice committee, medical societies or boards investigating medical violations, and shall review charges for medical treatment and care (of injured workmen)," according to the *New York Times*.

New York City

Medical Veterans' Aid Fund.—Trustees of the Physicians Loan and Relief Fund of the Medical Society of the County of New York, under the direction of Dr. Nathan O. Ratnoff, have formed a Medical Veterans' Aid Fund. Returning members in need of economic assistance may borrow from this fund without interest to reestablish themselves in practice, train for a specialty or undergo suitable rehabilitation in the event of disability. Contributions to the fund will be accepted.

Dr. Cohn Made Member Emeritus at Rockefeller Institute.—Dr. Alfred E. Cohn, since 1920 a member of the Rockefeller Institute for Medical Research, has been made member emeritus of the institute, having reached the retirement age. Dr. Cohn graduated at Columbia University College of Physicians and Surgeons in 1904, joined the Rockefeller Institute in 1911, and became an associate member in 1914; he has been a member of the China Medical Board of the Rockefeller Foundation since 1934. Promotions on the scientific staff of the institute include those of Walther F. Goebel, Ph.D., from associate member to member and Dr. Robert F. Watson from assistant to associate.

Report Urges Revocation of Compensation Licenses for 119 Physicians.—Recommendations that 119 physicians lose the right to handle workmen's compensation cases for periods ranging from fifteen days to one year were contained in a report submitted June 23 to Edward Corsi, industrial commissioner, by the compensation boards of the Queens, Bronx and Westchester county medical societies. According to the *New York Times*, the boards passed on a total of 1,077 cases of medical men accused of participation in "kick-back rackets" and also suggested that 325 doctors be censured, 232 exonerated and the cases of 339, now in the armed services, be filed for future action. Additional hearings were recommended for

two others accused. All the doctors named by the boards have been notified of the recommended disposition, Mr. Corsi said, and have thirty days in which to file appeals before the Industrial Council of the State Department of Labor.

PENNSYLVANIA

Health and Human Relations.—The Pennsylvania Department of Health will sponsor a conference on health and human relations at State College, July 18-19. Among the topics to be discussed will be "How Science Dispels Many Misconceptions About Sex" and "Equitable Divisions of Responsibility in Sex Education Problems Between Teacher, Parent, Physician, Church, Community and State." Among the speakers at the meeting were Dr. Alexander H. Stewart, Harrisburg; Dr. Stanley P. Reimann, Philadelphia; Oscar Riddle, Ph.D., New York; Dr. George Lynde Gately, Boston; Erval R. Coffey, Assistant Surgeon General, U. S. Public Health Service, and Dr. William H. Perkins, Philadelphia.

Pittsburgh

Personal.—Dr. Thomas W. Cook has been appointed chief surgeon of the Pittsburgh Safety Department to succeed Dr. Daniel E. Sable, who retired to engage in private practice. The state medical journal reports that Dr. Sable in his thirty-four years in the position answered 60,000 fire alarms.

Physicians at Reunion of Johnstown Flood Association.—Dr. John D. Milligan, Pittsburgh, who will observe his ninety-third birthday July 31, and Dr. Elmer E. Wible, Homestead, formerly deputy coroner of Westmoreland County, attended the Pittsburgh meeting of the Johnstown Flood Correspondents Association on May 31. The group is made up of members who worked in various capacities during the Johnstown flood.

RHODE ISLAND

Industrial Meeting.—The Rhode Island Society of Industrial Physicians and Surgeons and the Rhode Island Industrial Nurses' Club met in joint session May 23 in Providence. Among the speakers were:

Louis Schwartz, medical director, U. S. Public Health Service, Occupational Diseases in Rhode Island Industries.

Dr. Chicago, The Meaning of Industrial Medicine.

Dr. Orlen J. Johnson, Council on Industrial Health, American Medical Association, Hospitalization and Cash Sickness Insurance Sponsored by Industry.

A feature of the meeting was a symposium on "Reconditioning of Disabled War Veterans and Their Assimilation by Industry."

State Medical Election.—Dr. John F. Kenney, Pawtucket, was chosen president elect of the Rhode Island Medical Society during its meeting in Providence May 24-25, and Dr. Elihu S. Wing, Providence, was installed as president. Dr. Fenwick G. Taggart, East Greenwich, was named vice president. Dr. Michael H. Sullivan, Newport, the outgoing president, spoke on "Changing Aspect of Medical Organization." Dr. Reginald Fitz, Boston, delivered the Charles V. Chapin Oration on "Forecast by Numbers." Among other speakers at the meeting were:

Comdr. Clarence C. Fuller (MC), Results in Treatment of 60 Cases of Malaria, and a Review of 100 Cases of Filariasis.

Dr. James R. Miller, Hartford, Conn., Planning for Medical Care.

Dr. Walter C. Alvarez, Rochester, Minn., Sick Headaches.

Dr. Justus B. Rice, New York, Malaria.

TEXAS

Training Center for Record Librarians.—To assist in current hospital problems, a training center for record librarians has been established at the John Sealy Hospital, University of Texas School of Medicine, both of Galveston, under the direction of Miss Margaret McArdle, R.R.L., who is in charge of the record library of the John Sealy Hospital.

State Medical Election.—Dr. Claude C. Cody Jr., Houston, was chosen president elect of the State Medical Association of Texas at its annual meeting recently. Dr. Herschel F. Connally, Waco, was installed as president. Other officers include Drs. Ralph G. Johnson, Newgulf, Elbert W. Wright, Bowie, and Herschel E. Wingham, McAllen, vice presidents. Dr. Holman Taylor, Fort Worth, is secretary of the association.

Survey of Health Facilities.—A survey of the medical education needs of the state of Texas will be carried out by a committee recently appointed by the board of regents of the University of Texas, the purpose of which is to determine the most appropriate way the university may serve the state in providing educational facilities for promoting the health of the citizens. The survey will include all parts of the state. Members of the committee include members of the board of regents,

the dean of the school of dentistry in Houston, Fred C. Elliott, Chauncey D. Leake, Ph.D., dean of the medical branch at Galveston, and Homer P. Rainey, president of the University of Texas.

News of Baylor University.—The John and Mary R. Markle Foundation recently awarded a grant of \$7,000 to Baylor University College of Medicine, Houston, to support the work of Allen D. Keller, Ph.D., on brain stem and related hypophysial and cerebellar functions during the coming two years. Dr. Keller is professor of physiology and chairman of the department of physiology and pharmacology at the university. Major Carl T. Javert, M. C., lectured to the students and faculty on "Erythroblastosis Fetalis." Major Javert, who held conferences with obstetricians, pediatricians and pathologists, visited the school through a grant awarded by the H. E. Butt Foundation of Corpus Christi. New appointments to the school include those of Carroll A. Handley, Ph.D., Vermillion, S. D., to assistant professor of physiology and pharmacology; Dr. George W. Salmon, St. Louis, to assistant professor of pediatrics; Dr. Don W. Chapman, Iowa City, to instructor in the department of internal medicine, and Dr. William W. Coulter Jr., Kerrville, Texas, to instructor in the department of internal medicine. Miss Ella May Shackleford, formerly with the J. C. Oliver Memorial Research Laboratory, St. Margaret Memorial Hospital, Pittsburgh, and student of the late Max Brödel, has been appointed medical illustrator in the department of visual education.

Million Dollars Offered Texas University.—The Sealy and Smith Foundation of Galveston has offered one million dollars to the University of Texas for a new general hospital unit at Galveston. The gift is contingent on the university's spending about another million dollars for a new hospital, which would furnish some 500 more beds than the 400 now available at John Sealy Hospital. The offer, according to the *Texas State Journal of Medicine*, was made for the construction of a pavilion to be known as the R. Waverley Smith pavilion for both pay and semipay patients. The proposed unit, for which the foundation would also provide x-ray equipment and clinical laboratories, would be joined to the present outpatient clinic and children's hospital. Part of the new construction would occupy the site of the women's dormitory on the medical campus. The regents have agreed to provide a new building for women students. No mention was made of what would become of the old Sealy Hospital building, which, after a tropical storm in 1943, was defined as "safe but not satisfactory." The Sealy and Smith Foundation was established in 1927 to promote the development of the John Sealy Hospital of the University of Texas Medical Branch for the purpose of aiding in the care of the indigent sick of Galveston. Since the foundation was established with bequests of John Sealy Jr. and Mrs. R. Waverley Smith, it has contributed more than \$1,500,000 to the upkeep and support of the hospital and has contributed over \$550,000 toward the expense of new building. It continues the benefactions of John Sealy, who died in 1884 and whose will made possible the establishment of the hospital in association with the medical branch in Galveston in 1890.

GENERAL

Gift to Pharmaceutical Foundation.—A total of \$485,000 has been contributed to the American Foundation for Pharmaceutical Education by 300 drug firms, it is reported (*The Journal*, June 17, p. 506).

Secretary Named for American Bacteriologists.—Leland W. Parr, Ph.D., professor and executive officer of the department of bacteriology, George Washington University School of Medicine, Washington, D. C., is the new secretary-treasurer of the Society of American Bacteriologists. His address is 1335 H Street N.W., Washington 5.

Petition to Form Hospital Libraries Division.—A petition is being circulated to form a hospital libraries division of the American Library Association. If organized, the division would contain parallel sections for hospital, institutional, medical and schools of nursing libraries. Interested persons should communicate with Mrs. Glyde B. Nielsen, secretary-treasurer, Hospital Libraries Round Table, Minneapolis Public Library, Minneapolis.

Officers of Anesthesiology Board.—Dr. Harry Boyd Stewart, Tulsa, Okla., was elected president of the American Board of Anesthesiology, Inc., at its meeting in Chicago, June 9-11. Dr. Philip D. Woodbridge, Philadelphia, was named vice president and Dr. Paul M. Wood, New York, secretary-treasurer. The next written examination of the board will be conducted Jan. 19, 1945 at various medical schools, the first

to be announced later. The next oral examination of the board will be held in New York preceding the annual session of the American Medical Association.

Special Society Elections.—Dr. Harold I. Lillie, Rochester, Minn., was named president of the American Laryngological Association at its annual meeting, June 8. Dr. Arthur W. Proetz, St. Louis, is secretary.—Dr. Samuel W. Hamilton, Washington, D. C., was chosen president-elect of the American Psychiatric Association at its annual meeting in Philadelphia in May and Dr. Karl M. Bowman, San Francisco, was installed as president. Dr. Winfred Overholser, Washington, was reelected secretary-treasurer.

Fund Available for Health Education in Poliomyelitis.—The National Foundation for Infantile Paralysis has set aside \$50,000 for fellowships in health education. Under the program, which has been developed in cooperation with the U. S. Public Health Service, qualified men with certain selective service classifications, as well as qualified women, will begin training this fall. It is believed that trained personnel will be of great assistance in coordinating the community's resources of official and voluntary agencies. Candidates for these fellowships will be chosen by an advisory committee of the U. S. Public Health Service, and those accepted will be assigned to schools of public health at Yale University, University of Michigan and the University of North Carolina. The bachelor of science degree or its equivalent at a recognized college or university is an essential qualification for one of these fellowships leading to the master of science degree in public health. This postgraduate training will consist of nine months' academic work, followed by three months of supervised field experience. Women between the ages of 19 and 40 who have these educational qualifications and who are citizens of the United States are eligible. Men who are United States citizens over 30 years of age also may apply, and the War Manpower Commission has declared Selective Service registrants in 4F and 1AL classifications as eligible for health education fellowships. A fellowship in health education covers a stipend to the trainee of \$100 monthly for twelve months, tuition and university fees to the school and expenses for field service. Applications are obtainable from the Office of the Surgeon General, U. S. Public Health Service, Washington (14), D. C. Applications must be accompanied by a transcript of college credits and a small photograph and must be in the Office of the Surgeon General not later than August 15.

CANADA

National Department of Health.—If recently proposed actions take place, the department of pensions and national health will cease to exist, according to the *Canadian Journal of Public Health*. This opinion is based on the recent announcement to parliament of the establishment of three departments of government, social welfare, veterans' affairs and reconstruction. According to the *Journal of Public Health* the department of reconstruction will advance and coordinate a broad program designed to meet postwar needs. The department of social welfare will be responsible for the administration of insurance measures and those functions in the field of public health which are under the health branch of the department of pensions and national health. The work of the pensions branch will be assumed by the new department of veterans' affairs. The department of pensions and national health will cease to exist, it was stated. Hospitalization of returned soldiers will be the responsibility of the department of veterans' affairs, causing a separation of hospitalization, which is essentially a health matter, from the department charged largely with the responsibility for health, since the work of the health branch of the department of pensions and national health will presumably be administered by the department of social welfare. The editorial in the *Canadian Journal of Public Health* says it is most disappointing that, if the proposed measures are adopted, Canada will no longer have a national health department, even though the health services may be included in the broad designation "social welfare." The editorial points out that this reorganization raises the whole question of the status of the public health services in the federal government. When the department of national health was established in 1919 there was approval of centralizing public health work in one department which would be represented in the cabinet by the minister of health. In June 1928, when the department of soldiers' civil reestablishment ceased to function, the administration of veterans' affairs was transferred to the department of national health, which subsequently was known as the department of pensions and national health. Today, says the *Journal of Public Health*, sixteen years after the amalgamation of the two departments, the budget for pensions is about fifty times that for national health.

FOREIGN

Activities in Tropical Medicine.—The Swiss Society for Tropical Medicine has been founded at Berne under the presidency of Dr. Paul Thillot, Lausanne, it is reported. It is also announced that an institute for tropical medicine has been founded at Basle.

Australian Named Director of Wellcome Research Laboratories.—Dr. Charles Halliley Kellaway, F.R.S., director of the Walter and Eliza Hall Institute of Research in Pathology and Medicine, Royal Melbourne Hospital, Melbourne, Australia, has been appointed director of the Wellcome Foundation Research Laboratories in England and the United States. Dr. Kellaway will be succeeded in his Melbourne position by Dr. Frank M. Burnet. Dr. Kellaway will be located in London.

Personal.—Dr. James Augustus Wall has been appointed government medical officer at Leeton, New South Wales.—Dr. Gordon Clive Smith has been appointed medical officer for industrial hygiene in the department of public health at New South Wales.—Sir Humpary D. Rolleston has resigned as editor of the *Practitioner*, a position he has held since 1928. Dr. Alan A. Moncrieff, associate editor since 1934, will act as editor.—Sir John Fraser, Bart., regius professor of clinical surgery at the University of Edinburgh, has been appointed to succeed Sir Thomas H. Holland as principal of the University of Edinburgh.

Program for Tuberculosis Control.—Dr. J. Bell Ferguson, state director of tuberculosis control in Victoria, Australia, has launched a tuberculosis control program involving the provision of 2,000 beds at a cost of £606,500. The state government has approved of the provision of 144 beds at an estimated cost of £65,000. The tuberculosis control program includes a radiologic review of every child at the age of 12 years. Legal authority is sought for the detention of sufferers in sanatoriums to prevent transmission. According to a report from the division of medical sciences of the National Research Council, it has been found that between 60 and 70 per cent of all home contacts are infected within five years. It was pointed out that the death rate from tuberculosis in Victoria is increasing. In 1940 it was 42.3 per hundred thousand of population, while in 1942 it was 46.2, with a total of 879 deaths from tuberculosis, the worst record in Australia.

Medical Journals in China.—The *Chinese Medical Journal*, a few copies of which have recently been received in this country, is being published in Chengtu, an unoccupied city of China. Published on cheap paper, the journal is made up under great difficulties. The articles are chosen for their practical value in the free portions of China. They are written in English and hand set, in many cases by Chinese who do not even know the English language. The Medical Abstracts, supplement to the *Chinese Medical Journal*, are being published under similar circumstances. The subscription price per year of the *Journal* and abstracts is 200 national currency. Four issues of the journal published in October 1942 and in January, April and July 1943 contain original articles, editorials, news and correspondence and constitute the series for volume 61A. The October 1942 issue was designated the Chengtu edition, volume one, number one, and contained a preliminary announcement of the sixth biennial conference of the Chinese Medical Association planned for Koloshan, Chungking, May 11-14, 1943. The original articles appear in many cases as contributions of faculty members of the West China Union University, Chengtu, the National Kweiyang Medical College, Kweiyang, the National Central University College of Medicine, Chengtu, the Cheeloo University, Shantung and Chengtu, the United Hospital of the Associated Universities, Chengtu, the National Shanghai Medical College, Chungking, and others. A few illustrations are used. One issue published in 1943 announced that the medical subcommittee of the committee for the promotion of the welfare of the blind had been organized. Mail is sent from the United States to China at a cost of 70 cents a half ounce. This charge applies to mailing rates for medical journals.

CORRECTION

Posterior Dislocation of the Sternal End of the Clavicle.—In the article by Greenlee with this title in *THE JOURNAL*, June 10, page 426, the second sentence in the first paragraph should read "Emphasis has been placed on injuries of the brain in connection with skull fractures, on injuries to the spinal cord in connection with fractures of the spine, on injuries to the lung in connection with rib fractures and on injuries to the bladder, urethra and bowel in connection with fractures of the pelvis."

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 10, 1944

Postponement of the Annual Representative Meeting of the British Medical Association

The annual representative meeting of the British Medical Association, due to begin July 18 in London, was canceled. So also was the panel conference of the association, which was to have been held in June. The reason for these changes was transportation difficulties, which are greater than ever at this stage of the war and have entailed the cancellation of many meetings of all kinds. The secretary of the British Medical Association wrote to the Ministry of War Transport regarding the holding of the meetings mentioned and received a reply from the minister of health that in view of the difficulties of transportation over long distances it was desirable to avoid the calling of conferences. He regretted that the July conference of the association and also the panel conference should have to be postponed. He expressed hope that it will be possible for these conferences to be held later in the year. He will communicate with the secretary as soon as it is possible to inform him of the removal of present restrictions. Postponement of the representative meeting delays the discussion dealing with the most momentous question that ever occupied the association: the line to be taken with regard to the government's proposal for a national health service. This postponement must greatly delay legislation on the subject.

Ministry of Health Standardizes Tests of Recovery from Venereal Diseases

The Ministry of Health has issued a memorandum for the guidance of medical officers at treatment centers for venereal diseases, specifying the tests which should be employed before discharging persons who have suffered from syphilis or gonorrhea. In the case of gonorrhea it is assumed that treatment has been continued until evidence of persisting infection has disappeared. The blood should be examined a week after treatment has been suspended and every month thereafter for a minimum of three months for the serum reactions. Men should be provided with microscopic slides and instructed how to spread them when any urethral discharge may appear. A week after suspending treatment the early morning urine, or urine held for a minimum of four hours, should be examined for heavy threads after an attempt to obtain discharge at the meatus. Any threads or discharge should be examined bacteriologically. Specimens of prostatic and vesicular secretion should be obtained for microscopic examination. Cultures of both urethral and prostatovesical secretion are desirable. If no evidence of persisting infection is obtained, an attempt should be made to stimulate discharge by filling the anterior urethra with a provocative solution, such as a 1 in 6 dilution of iodine 1, potassium iodide 2 and distilled water 300 parts. This should be retained for over two minutes. As a further provocative measure the prostate and seminal vesicles should be massaged after the bladder has been emptied, and the secretion should be left in the urethra. If no evidence of relapse is obtained, these measures should be repeated weekly for one month and thereafter each month for two or more months. At the end of this time the anterior urethra should be examined with a urethroscope, and a full sized metal sound passed into the bladder. These manipulations may produce a discharge, of which the patient should be warned to obtain a specimen.

In the case of women a week after suspending treatment specimens should be taken from the urethra, cervical canal and rectum and examined in stained smear and culture. In the case of the urethra and cervical canal, specimens should preferably

be taken the day after painting with a provocative chemical such as that described. In addition the examination should include inspection of the orifices of the Bartholinian and any paraurethral ducts, with bacteriologic examination of any secretion which can be expressed. This process should be repeated weekly for a month and thereafter every month for three months, the specimens being taken just after menstruation if this is occurring. Before final discharge, careful pelvic examination should exclude any residue of infection in the pelvic viscera.

In cases of syphilis the blood should be tested every three months after completing treatment for the first year and every six months for the second year. The spinal fluid should be tested at the end of treatment or earlier if the blood reactions are resistant, and the test should be repeated at the end of two years of observation. These tests are regarded as minimal for both sexes. If any relapse has occurred, both blood and spinal fluid should be tested more frequently. In the case of women satisfaction of these tests is not considered a sufficient safeguard against infection of the fetus in case of pregnancy, and treatment throughout the whole period of gestation is advised.

Care of the Student's Health

A pamphlet entitled "Health and the Student" has been produced by the collaboration of four students' organizations—the National Union of Students, the British Medical Students' Association, the British Dental Students' Association and the Scottish National Union of Students. It describes an elaborate scheme for the care of students. All students should be medically examined on entry to the university and subsequently at regular intervals by a full time university medical officer who would also give lectures; the pamphlet recommends X-ray examination of the chest should be performed on admission and at six month intervals. There should be a biennial Mantoux test. Regular dental inspection is desirable. In regard to mental health the dangers of a narrow scholastic outlook are emphasized. University authorities should give attention to the supply of cheap lodgings or hostels and good food; the authors believe.

Good use should be made of existing playgrounds, and where they are scarce they should be shared with other groups of young people, such as youth and sports clubs, irrespective of ownership. If the shortage of doctors at present makes regular medical inspection of all students impossible, it should be arranged at least for medical and dental students, who are more exposed to infection than others. The cost of protecting the students' health could be covered by a comprehensive insurance scheme, it is stated. So far, only one full time university medical officer has been appointed—at Birmingham.

E Hurry Fenwick

The death at the age of 88 of Mr. E. Hurry Fenwick removes a man who in the first quarter of the century was the most prominent urologist in this country. The son of Samuel Fenwick, physician to the London Hospital, he was educated there, qualifying in 1880. After postgraduate study on the continent particularly at Berlin and Leipzig, he became assistant surgeon to the London Hospital and later to St. Peter's Hospital for Genito-Urinary Diseases. He was one of the first to use Nitze's cystoscope. An excellent teacher and prolific writer, he had ten books to his credit, which were largely based on his extensive experience. When the International Congress of Medicine met in London in 1913 he was president of the section of urology. Fenwick was quick to apply Roentgen's discovery and in 1905 designed the first ureteral bougie opaque to the X-rays. He played a large part in the advances in the visual examination of the bladder. He kept full records of his cases on which he based his practical teaching. Recently, at 87, he contributed to the *British Medical Journal* a note on the "Expectation of Life After Nephrectomy for Urinary Tuberculosis."

BOLIVIA

(From Our Regular Correspondent)

April 18, 1944.

Incidence of Right and Left Eye Trauma
in Industry

The relative incidence of injury to the right and left eye has been investigated on some 58,000 miners whose records are available to the Bolivian Health Security Board. The total number of accidents listed was 8,396. Among these were 579 accidents involving one or both eyes: 229, or 39.5 per cent, involved the right eye; 282, or 48.7 per cent, the left eye, and 68, or 11.7 per cent, both eyes. In three different mining companies there were accurate histories of 257 cases of eye injury. Of these, 92, or 35.8 per cent, involved the right eye, 133, or 51.7 per cent, the left eye and 32, or 12.4 per cent, involved both eyes. "Mining" as used here refers to accidents peculiar to mining work, such as breaking rock by machine or by hand. "Stone breaking" refers exclusively to the breaking of larger stones with a hammer, inside or outside the mines. "Different occupations" includes all the other types of work, performed mostly by unskilled workmen; blows, carelessness by associates and similar accidents occurring during work hours, but not directly as a result of work. There were no available figures as to the number of engines employed in each company.

TABLE 1.—Frequency of Right and Left Eye Involvement on Various Jobs

Side	Mining		Mechanic		Carpenter		Arc Welder		Stone Breaker		Caustics		Different Workers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Right eye	16	6.23	29	11.28	..	....	6	2.33	8	3.10	..	....	33	12.84
Left eye	24	9.34	39	15.17	4	1.56	15	5.84	9	3.50	..	....	42	16.34
Both eyes	9	3.50	5	1.95	..	....	10	3.89	..	....	5	1.95	3	1.17

Relatively frequent are eye accidents among engineers, although there was only an average of 4.5 per cent of this profession employed in the entire staff.

The more frequent involvement of the left eye on different jobs is shown in table 1. The difference between right and left eye accidents in the miner's job is striking (24 of the left eye as against 16 of the right) and among engineers (39 of the left as against 29 for the right).

CAUSES FOR DIFFERENCE IN FREQUENCY OF INVOLVEMENT
OF THE RIGHT AND THE LEFT EYE

Miners.—The miner's specific work consists of drilling holes in the rock. This work is done with a perforator engine, mostly without water protection; or by hand, using chisel and hammer to make a hole which will later be loaded with dynamite. When working with the perforator, most workmen hold it alternately on each shoulder, so that there is an equal chance to get a foreign body into either eye. When drilling holes by hand, the man holds his hammer in his right hand, the chisel in his left. Swinging the hammer, he holds the chisel in his left hand, turning it around its longitudinal axis. Most of these eye accidents seem to happen during the first blows. The man is constantly bending his left side forward, his right eye being partially protected against splinters by his nose. The higher incidence of left eye accidents in this particular job may be attributed to this factor.

Engineers.—There is a higher incidence of eye accidents in this job than in any other, 28.40 per cent in the present study. In all the companies investigated, the number of engineers employed does not exceed an average of 4.5 per cent of all workmen employed. Most of the accidents are caused by carelessness. The mechanics are ordered to use protective glasses when working with certain tools such as chisels or grindstone. As to the distribution of accidents among engineers, the figures in table 2 indicate the tools used.

Noteworthy is the relatively higher incidence of accidents caused by working with the chisel.

Arc Welders.—A bad habit exists among these workers: when beginning a new welding wire they clean the isolated tip after placing the electrode in the handle by rubbing against the connecting iron pieces, causing many small arcs, without dropping the protective shield. As this rubbing is mostly effected from the left to the right side of the body, there is

TABLE 2.—Frequency of Right and Left Eye Involvement
Among Mechanics as to the Tools Used

Tool	Right Eye		Left Eye		Both Eyes	
	No.	%	No.	%	No.	%
Chisel	6	8.22	17	23.30	..	....
Turning lathe	2	2.74	3	4.11	..	....
Grind stone	21	28.77	19	26.03	..	....
Hot air, fumes .....	..	....	..	....	5	6.85

obviously more chance to get the arc flash burn in the left eye, but there is no other evidence that this is the only cause for higher left eye involvement. All the cases referred to as "arc welding" were diagnosed as flash conjunctivitis.

Other Occupations.—A somewhat higher incidence of left eye involvement was found only in one other type of work: intro-

duction into the eye of foreign bodies while sweeping the workroom floor with a broom. In this series there were 32 cases thus distributed: right eye 8 cases, left eye 23 cases, both eyes 1 case.

As to the seriousness of these 579 eye accidents, there was only one perforation of the right eye; all other accidents amounted only to introduction or incrustation of foreign bodies, irritative conjunctivitis produced by arc welding, hot air, fumes, caustics and the introduction of the relatively acid water.

CONCLUSIONS

In a series of 8,396 accidents, there were 579 eye accidents, or 6.89 per cent. Accurate investigation of 257 cases disclosed left eye involvement to be as high as 51.75 per cent as against 35.80 per cent for the right eye. Most exposed to eye accidents were engineers (28.40 per cent), although there was only an average of 4.5 per cent of engineers in the whole staff. Next in order were miners. Most left eye accidents occurred while working with a chisel. A little higher incidence of left eye accidents was noted also among unskilled workers sweeping floors, and among arc welders. The present study is a fair cross section of a large number of all types of accidents recorded by several mining companies.

Marriages

FURNIFOLD MCLENDEL SIMMONS PATTERSON, New Bern, N. C., to Miss Ruth Adriel Read of Philadelphia, June 13.

JEREMIAH HENRY HOLLEMAN, Pickens, Miss., to Miss Agnes Willette Smith of Greenwood, June 12.

VANCE BENTON ROLLINS, Henderson, N. C., to Miss Carrie Lee Laney of Camden, Ark., June 20.

JAMES ROBERT FLAUTT JR., Swan Lake, Miss., to Miss Mary Louise Smith in Clarksdale, June 20.

Deaths

William Thornwall Davis * Washington, D. C.; Columbia University Medical Department, Washington, 1901; since 1920 professor of ophthalmology at the George Washington University School of Medicine; professor of ophthalmology at the U. S. Army Medical School, 1917-1918; a first lieutenant and later a captain in the medical corps of the U. S. Army from 1902 to 1913; served under Gen. Leonard Wood in the Philippines in the Moro campaign of 1904-1905 and under Gen. Frank McCoy in the Datu Ali Campaign in 1905; a major in the medical corps of the U. S. Army during World War I; served as a member of the advisory board, Selective Service Board; specialist certified by the American Board of Ophthalmology; member and in 1935 first vice president of the American Academy of Ophthalmology and Otolaryngology; member and at one time member of the council and chairman of the executive committee council of the Southern Medical Association; member of the Pan American Medical Association and the Washington Academy of Medicine; a member of the Sons of the American Revolution, Military Order of Foreign Wars of the United States, Military Order of the Caraboa, Spanish-American War veterans and others; in 1940 was decorated with the Order of Carlos J. Finlay; consultant and chief of service in ophthalmology, George Washington University Hospital; senior surgeon at the Episcopal Eye, Ear and Throat Hospital; consulting ophthalmologist, Garfield, Columbia, Gallinger and Casualty hospitals; member of the board of directors of the Washington Loan and Trust Company; died June 15, aged 67.

Joseph Brennemann * Reading, Vt.; Northwestern University Medical School, Chicago, 1900; professor of pediatrics at the University of Chicago School of Medicine from 1921 to 1941; chief of staff of the Children's Memorial Hospital, Chicago, from 1921 to Jan. 1, 1941, when he resigned after serving three years beyond the retirement age; at one time attending pediatrician at the Cook County, St. Luke's and Wesley Memorial hospitals in Chicago; professor of pediatrics at the University of Southern California School of Medicine, Los Angeles, from 1941 to 1943; served as chief of staff at the Children's Hospital in Los Angeles; specialist certified by the American Board of Pediatrics, Inc.; an Affiliate Fellow of the American Medical Association; member of the Illinois State Medical Society, American Academy of Pediatrics, Central States Pediatric Society and the Institute of Medicine of Chicago; honorary member of the British Pediatric Society; member and past president of the American Pediatric Society and the Chicago Pediatric Society; editor of "Brennemann's Practice of Pediatrics"; died July 2, aged 71.

Carl Fisher * Los Angeles; Harvard Medical School, Boston, 1905; clinical professor of surgery (ophthalmology) at the University of Southern California School of Medicine; entered the Mayo Clinic, Rochester, Minn., as head of the section on ophthalmology and otology on May 1, 1909 and resigned July 1, 1917; major in the medical corps, American Expeditionary Forces, serving at Base Hospitals number 26, 115 and 57 during World War I; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology, American Ophthalmological Society, Association for Research in Ophthalmology, Inc., Western Ophthalmological Society, Pacific Coast Ophthalmological Society, Los Angeles Ophthalmological Society and the Alumni Association of the Mayo Foundation; a member of the staffs of the Good Hope Clinic, the Eye and Ear Hospital, St. Vincent's Hospital and the Hospital of the Good Samaritan; died June 7, aged 64.

Paul Judd Sartain * Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1886; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the College of Physicians of Philadelphia; member of the Franklin Institute, Historical Society of Pennsylvania, Zoological Society of Philadelphia, Oxford Ophthalmological Congress, Colonial Society of Pennsylvania and the Société Française d'Ophthalmologie; since 1894 secretary of the Geographical Society of Philadelphia; a member of the Medical Club of Philadelphia, of which he was vice president in 1925; died April 9, aged 82.

Alonzo Cass Tenney, Chicago; the Hahnemann Medical College and Hospital, Chicago, 1895; member of the Illinois State Medical Society; formerly adjunct professor of pathology and the theory and practice of medicine at his alma mater; professor of physical diagnosis at the Illinois Post-Graduate Medical School from 1916 to 1919; medical examiner for the

Illinois Civil Service Commission from 1915 to 1919; member of the consulting staff of the Illinois Masonic Hospital; on the courtesy staff of the Henrotin Hospital; died in the Research and Educational Hospital, University of Illinois, May 8, aged 70, of coronary insufficiency, decompensation and diabetes mellitus.

Francis Milton Shockley * Stamford, Conn.; University Medical College of Kansas City, Mo., 1913; specialist certified by the American Board of Psychiatry and Neurology, Inc.; served in the medical corps of the U. S. Army during World War I; lieutenant colonel in the medical reserve corps of the U. S. Army not on active duty; in 1942 was chosen vice president of the Connecticut Society for Psychiatry and Neurology; formerly physician in charge of Stamford Hall; consultant in psychiatry at the Stamford Hospital; died in the Veterans Administration Facility, New York, April 25, aged 54, of hypertension and coronary heart disease.

Allison Temple Wanamaker * Seattle; Northwestern University Medical School, Chicago, 1907; specialist certified by the American Board of Otolaryngology; past president of the King County Medical Society; member of the American Laryngological Association, American Laryngological, Rhinological and Otolological Society and the Pacific Coast Otolaryngological Society; fellow of the American College of Surgeons; member of the executive committee and staff, King County Hospital; on the staffs of the Children's Orthopedic, Providence and the Swedish hospitals; died June 21, aged 63.

Gordon Ira Trevett, Baltimore; Cornell University Medical College, New York, 1936; instructor in preventive medicine at the Johns Hopkins University School of Medicine; served as instructor in preventive medicine at the Johns Hopkins University School of Hygiene and Public Health; formerly an intern in surgery at the New York Hospital and intern in medicine at the Strong Memorial and Rochester Municipal hospitals, Rochester, N. Y., where he had been a resident in internal medicine; since Sept. 1, 1940 assistant dispensary physician at the Johns Hopkins Hospital, where he died May 3, aged 32, of carcinoma of the rectum with metastases.

Ida E. Shope Bishop, Winslow, Ariz.; Woman's Medical College of Georgia and Training School for Nurses, Atlanta, 1892; died April 29, aged 88, of senility.

Frank T. Carmer, Newfane, N. Y.; University of Buffalo School of Medicine, 1894; member of the Medical Society of the State of New York; served as acting assistant surgeon in the U. S. Public Health Service; health officer of Lockport, and county coroner; on the staff of the Lockport City Hospital, Lockport; died April 16, aged 75, of cerebral hemorrhage.

Herbert Ross Clark, Pierce City, Mo.; Beaumont Hospital Medical College, St. Louis, 1901; served during World War I; died April 9, aged 67, of chronic myocarditis and terminal nephritis.

James A. Garfield Clayton, Eaton, Colo.; Hering Medical College, Chicago, 1905; member of the Colorado State Medical Society; at one time mayor of Craig, member of the city council and coroner of Moffat County; on the staff of the Greeley Hospital, Greeley, where he died April 12, aged 62, of duodenal ulcer hemorrhage.

Carroll Stoll Davenport * Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1922; specialist certified by the American Board of Radiology, Inc.; formerly instructor in roentgenology at his alma mater; member of the Detroit Roentgen-Ray and Radiological Society and the Michigan Association of Radiologists; in charge of the x-ray department of St. Lawrence Hospital, where he died April 26, aged 46, of coronary spasm.

Walter Martin Droll, Alta Vista, Kan.; Rush Medical College, Chicago, 1893; served as coroner of Wabaunsee County; on the staff of the Newman Memorial County Hospital, Emporia; died March 28, aged 75.

Willoughby George Dye * Los Angeles; Northwestern University Medical School, Chicago, 1901; fellow of the American College of Surgeons; served during World War I; at one time on the staff of St. Joseph's Hospital, Deer Lodge, Mont.; died in St. John's Hospital April 1, aged 70, of congestive heart disease.

John Clement Ellis * Panama City, Fla.; Atlanta College of Physicians and Surgeons, 1906; served during World War I; company physician for the Wainwright Shipbuilding Company; instrumental in organizing the Taylor County Health Unit; past president and secretary of the Taylor County Medical Society; died April 19, aged 61, of coronary occlusion.

Paul Smith Fox, Athens, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888; served as president of the village and member of the board of education; died in the Community Hospital, Battle Creek, April 26, aged 83, of pneumonia.

Norman Wilkinson Gillespie, Boston; Harvard Medical School, Boston, 1915; member of the Massachusetts Medical Society; a first lieutenant in the medical corps of the U. S. Army during World War I; on the staff of the Boston Lying-in Hospital; died April 28, aged 56, of acute coronary occlusion.

Henry Harrison Harvey, La Mesa, Calif.; University of Denver Medical Department, 1897; died April 3, aged 67, of coronary sclerosis.

Fred Hexamer, Newark, N. J.; University of the City of New York Medical Department, New York, 1888; member of the Medical Society of New Jersey; died April 28, aged 77, of cerebral hemorrhage.

Charles Tilden Hunt, Dayton, Ohio; Miami Medical College, Cincinnati, 1906; member of the Ohio State Medical Association; served in the medical corps of the U. S. Army during World War I; died in Detroit April 28, aged 67, of coronary thrombosis.

Paul Mellers Hunter * San Marino, Calif.; Chicago College of Medicine and Surgery, 1917; served during World War I; formerly affiliated with the Collis P. and Howard Huntington Memorial Hospital, Pasadena; died in Pasadena April 29, aged 53, of coronary thrombosis.

Robert Everett Jones, Denver; Marquette University School of Medicine, Milwaukee, 1935; member of the Colorado State Medical Society; served an internship at St. Luke's Hospital and a residency at the Children's Hospital; died April 12, aged 36, of pulmonary embolism.

Robert Maxwell I. Kinnear, La Crosse, Wis.; Chicago Homeopathic Medical College, 1890; died in a local hospital April 15, aged 83, of carcinoma of sigmoid and colon and arteriosclerosis.

Theodore Kroesch * Enterprise, Kan.; Rush Medical College, Chicago, 1905; county health officer; found dead April 5, aged 63, of poison, self administered.

Charles Lewis, St. Louis; St. Louis College of Physicians and Surgeons, 1891; died in the De Paul Hospital April 18, aged 82, of heart disease and a fractured hip received in a fall.

Bernard Graves Marr, Dyersburg, Tenn.; University of Louisville (Ky.) Medical Department, 1911; member of the Tennessee State Medical Association; served on the staff of the Baird Brewer Hospital; died April 23, aged 60, of pernicious anemia.

Thaddeus Leander Mathers, Matherville, Miss.; Medical College of Alabama, Mobile, 1904; died April 18, aged 87, of coronary thrombosis.

James Francis McCaw, Watertown, N. Y.; College of Physicians and Surgeons, New York, 1892; specialist certified by the American Board of Otolaryngology; member of the American Laryngological, Rhinological and Otolological Society and formerly vice president; member of the American Otolological Society, Inc.; fellow of the American College of Surgeons; served on the staffs of the Jefferson County Orphan Asylum and the House of the Good Samaritan, where he died April 29, aged 80, of coronary thrombosis.

Charles Henry McHaffie, Ash Grove, Mo.; Ensworth Medical College, St. Joseph, 1906; member of the Missouri State Medical Association; veteran of the Spanish-American War; served overseas as a captain in the medical corps of the U. S. Army during World War I; died in the Springfield

Baptist Hospital, Springfield, April 12, aged 64, of pulmonary embolism following an operation.

Charles D. Mohler, Hastings, Mich.; Detroit College of Medicine, 1905; served as health officer; on the staff of the Pennock Hospital; died April 27, aged 65, of heart disease.

Grant B. Nichols, Wapakoneta, Ohio; Medical College of Ohio, Cincinnati, 1883; member of the board of education; surgeon for the Western Ohio Railroad; died April 26, aged 82, of cerebral embolism.

George Gibson Parlow, Wareham, Mass.; College of Physicians and Surgeons, Boston, 1905; member of the Massachusetts Medical Society; a captain in the medical corps of the U. S. Army during World War I; formerly a member of the board of health and the school board; at one time on the staffs of the Fall River General and Union hospitals, Fall River; died April 20, aged 74, of cerebral thrombosis and arteriosclerosis.

George Burgess Pierce, New York; Harvard Medical School, Boston, 1898; died in the New York Hospital May 3, aged 68, of hypertensive cardiovascular disease with arteriosclerotic heart disease.

Edward Reinert * Columbus, Ohio; Ohio Medical University, Columbus, 1897; member of the American Radium Society; at one time night physician for the Ohio State Peni-

tentiary, surgeon to the city police department and assistant superintendent of the city board of health; formerly a member of the state board of administration; died in the Grant Hospital April 30, aged 70, of aplastic anemia due to radium and x-ray emanation.

James Blaine Shoemaker * Miami, Ind.; Pulte Medical College, Homeopathic, Cincinnati, 1910; served during World War I; died in Crow Wing Township, Minn., May 13, aged 59, of coronary thrombosis.

Aloysius Joseph Wochinski, Chicago; Loyola University School of Medicine, Chicago, 1918; member of the Illinois State Medical Society

and the American Urological Association; fellow of the American College of Surgeons; specialist certified by the American Board of Urology, Inc.; associate clinical professor of urology at his alma mater; attending genitourinary surgeon, Alexian Brothers' and Columbus hospitals; died May 30, aged 51, of coronary occlusion.

KILLED IN ACTION

Richard Monroe Forsythe, East Cleveland, Ohio; Western Reserve University School of Medicine, Cleveland, 1937; served a residency at the Grasslands Hospital in Valhalla, N. Y., and the Le Roy Sanitarium in New York; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on May 31, 1940; later promoted to lieutenant and lieutenant commander; died of wounds received in action in the Southwest Pacific area March 30, aged 30.

Carl Oscar Nord, Drexel, Mo.; Northwestern University Medical School, Chicago, 1943; served an internship at St. Luke's Hospital in Kansas City, Mo.; commissioned a first lieutenant in the medical corps, Army of the United States, on June 12, 1943 and began active duty at Carlisle Barracks, Pa., on July 13, 1943; later promoted to captain; served with the 45th infantry division on the Anzio beachhead; killed in action in the North African theater May 15, aged 32.



LIEUT. COMDR. RICHARD M. FORSYTHE
(M.C.), U.S.N.R., 1913-1944



CAPT. CARL O. NORD, M. C.,
A. U. S., 1912-1944

Bureau of Investigation

CEASE AND DESIST ORDERS

Abstracts of Certain Federal Trade Commission Releases

The work of the Federal Trade Commission, in helping to protect the public against misrepresentation or fraud in the medical as well as other fields, has been greatly extended by the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act. The Food, Drug and Cosmetic Act of 1938 increased the Food and Drug Administration's control of the advertising claims and statements made on the label of a medicine or on the carton or in the accompanying leaflet, whereas what might be termed collateral advertising, that which appears in circulars, newspapers and magazines and over the air, comes more actively under the purview of the Federal Trade Commission by virtue of the Wheeler-Lea Amendment.

THE JOURNAL has at various times commented on the activities of the Federal Trade Commission in this connection, even before the Wheeler-Lea Amendment gave it its added rights. In some cases the Commission may accept from the person or concern involved a stipulation that the objectionable practices or claims cited will be discontinued. In other cases the Commission issues what is known as a Cease and Desist Order, in which the individual, manufacturer or distributor cited is ordered to cease and desist from practices which have been declared objectionable. In some cases the claims cited have been discontinued by the firms several months (or even longer) before the issuance of the order. Abstracts of some of the orders issued in 1943 follow in this form: name of product, name of distributor, date of issuance of complaint, date of issuance of Cease and Desist Order and terms of order.

Amogen Tablets.—J. R. Hodges, trading as Amogen Company, San Antonio, Texas, complaint issued Sept. 21, 1942; order issued July 31, 1943. Order directed Hodges to discontinue any advertisements which misrepresented the properties of these tablets and failed to reveal the harmful results from long continued use of them. The order further directed Hodges to cease representing that his product is a cure or remedy for, or has any value in the treatment of, malaria, common colds and fevers, poor digestion, acid or gas on the stomach, neuralgia, rheumatic pains and fever, sallow complexion, boils, skin irritations or over-indulgence in food and drink, that it offers any benefit in biliousness, excess bile in the system, headaches, coated tongue, or bad taste in the mouth, in excess of temporary laxative relief, as when such conditions are due to constipation, or that it will rid the system of poisons or enable the user to avoid sickness or maintain good health. The order further directed the respondent to discontinue any advertisement which did not reveal that continued use of Amogen Tablets over a long period of time may result in mercury poisoning, and that the product should not be used in case of abdominal pains, nausea or other symptoms of appendicitis, provided, however, that such advertisement need contain only the statement, "Caution: Use only as directed" if the directions for use, when appearing on the label, contain warnings to the same effect. The Commission found that the preparation is essentially a laxative containing calomel, a mercury derivative, that its continued use may result in mercury poisoning and serious injury to health, and that it has no value in the treatment of the disorders for which it has been advertised. The Journal for August 29, 1942, page 1522, recorded a stipulation which J. R. Hodges entered into with the Commission in July 1941, in which he had agreed to discontinue some of the foregoing objectionable misrepresentations.

Domestic Short-Wave Diathermy.—Max E. Heyman and Maude S. Jaret, trading as Domestic Diathermy Company, New York, complaint issued April 16, 1943; order issued June 21, 1943. Order directed these respondents to discontinue the following advertising misrepresentations: That their device is safe or harmless or that, when used by unskilled laymen in the treatment of self-diagnosed conditions, it constitutes a competent treatment of, or remedy for, rheumatism, arthritis, sciatica, neuralgia, lumbago, sinus trouble, neuritis, laryngitis, tonsillitis, bursts, asthma, female complaints, and some other things, that its use will renew youthful vigor and establish bodily efficiency and resistance to disease, and that the treatment which the device provides is similar to that known as "friendly fever." The order further prohibited dissemination of any advertising which would fail to reveal clearly and conspicuously that this mechanism is not safe to use for any condition unless a competent medical authority has determined by diagnosis that diathermy is indicated and has prescribed the frequency and rate of application of the treatments and the user has been adequately instructed by a trained technician in the use of the device.

Dorothy Gray Cosmetics.—Lehn & Fink Products Corporation, and its subsidiary, Dorothy Gray, Ltd., both at Bloomfield, N. J., complaint issued June 4, 1938, order issued June 24, 1943. Order directed the respondents

to cease representing that the vitamin D content in their cosmetic creams will cause the coloring of the skin to be cleared or brightened, make skin texture softer, smooth lines, or provide any beneficial effect whatever, or that treatment with these preparations tightens the relaxed contour of the face, stimulates lagging circulation or clears the pores of dirt. The order, however, permitted the respondents to represent that such creams may remove superficial accumulations of dirt from the pore openings. The order further directed the respondents to cease representing that their "Special Toning Oil," when used alone or in combination with their other products, will penetrate the skin, or that their preparations, on the whole, will remove, counteract or fortify against lines or wrinkles in the skin. It did not, however, prohibit the representation that an emollient cream which lubricates the skin will aid in smoothing out lines caused solely by dryness of the skin.

Eisaco Mineralized Water.—Electro Vita Sales Company of Ohio, Norwalk, Ohio, complaint issued Oct. 26, 1942, order issued August 6, 1943. Order directed respondent to cease representing that the product has any beneficial effect other than a tendency to decrease stomach acidity, that it will neutralize any acid condition of the blood stream or rid the body of an acid condition, that it has any beneficial effect in activating the kidneys, that it will supply mineral deficiencies or essential mineral salts needed to keep the body chemistry in balance, or act as an oxidizing agent, that it has any value in treating asthma, kidney or bladder trouble, or any of the numerous diseases named in the advertising, or any other human ailment. The Commission found that the product was essentially the same as ordinary tap water, except for an added amount of calcium hydroxide which could not be obtained by any electrolytic method, but simply was physically added in the course of processing the water.

Fernet-Branca.—Fratelli Branca & Company, Inc., New York, complaint issued Sept. 5, 1942, order issued June 11, 1943. Order directed the respondent to cease representing that the preparation is a cure or remedy for stomach disorders, indigestion, headache, insomnia or liver ailments, or would have any value in the treatment of menstrual disturbances. The record shows that in March 1938 the concern had stipulated with the Commission that it would discontinue certain advertising representations similar to those mentioned above.

Kelp-A-Malt Tablets.—Associated Laboratories, Inc., Long Island City, N. Y., also known as Allied Laboratories, Kelp A Malt Company and Seedol Company, complaint issued Nov. 20, 1936; order issued July 26, 1943. Order directed respondents to cease representing that these tablets will enable those who are weak, emaciated, thin or underweight to overcome such conditions, or persons who are tired or run down to regain health, strength or vigor, that a well proportioned body can be acquired through use of the product, or that these tablets possess any value in the treatment of sour or acid stomach, gas or indigestion. Among the findings of the Commission in this case were that Kelp A Malt Tablets contain vitamin B₁, iron, iodine, calcium and phosphorus.

Lakota.—Bertha M. Urban, Elving, Neb., complaint issued May 21, 1942, order issued July 24, 1943. Order directed the respondent to discontinue the following misrepresentations in her advertisements of Lakota, a fruit juice: That the product has any medicinal value in the treatment of migraine or sick headache, high blood pressure or abdominal pains or ulcers, that the use of it will remove the cause of migraine headache or relieve the pain or discomfort associated with such condition, or that it has any value in treating constipation. The Commission's findings were that Lakota is composed entirely of the liquid obtained from boiling dried prunes, with ordinary brown or white sugar, and water.

Letta Cream.—M. L. Kay and Humbert O'Camp, trading as Letta Cream New York, complaint issued March 6, 1943, order issued June 19, 1943. Order directed respondents to discontinue any advertisement which represented that this cosmetic will give a youthful and beautiful appearance and make one look younger, that it will effectively remove and eradicate wrinkles, lines, baggy eyes, double chin, sagging muscles or other signs of age, or that the youthful appearance of motion picture stars is brought about through the use of this preparation.

Mercolized Wax.—Dearborn Supply Company, Chicago, complaint issued Sept. 25, 1938. The first order was issued August 20, 1939, and among other things, directed the company to discontinue advertisements which did not reveal that Mercolized Wax contains ammoniated mercury or that its use may injure some persons under certain conditions. The supplemental order issued July 17, 1943, called attention to the first one, and brought out the fact that the use of products containing ammoniated mercury in excessive amounts and in frequent applications is likely to result in erythema, edema, inflammation, irritation or other manifestations of dermatitis, particularly if the skin was cut or broken before the application. The order directed the concern in question to discontinue any advertisements which did not reveal that Mercolized Wax should not be applied to an area of the skin larger than the face and neck at any one time, that too frequent application over excessive periods of time should be avoided, that adequate rest periods between series of treatments should be observed, that the preparation should not be applied where the skin is cut or broken, and that in all cases a proper patch test should be made to determine whether the patient is allergic or sensitive to the product. The stipulation provided, however, that the statement, "Caution: Use only as directed" would be a sufficient warning in the advertising, provided that the same statement should appear on the labels.

Correspondence

SEEING EYE DOGS FOR BLINDED VETERANS

To the Editor—Your Current Comment in the June 3 issue of *THE JOURNAL*, dealing with the act to furnish seeing eye or guide dogs and other necessary equipment deemed useful in their rehabilitation to blinded soldiers, contains several misstatements

The American Association of Workers for the Blind, the largest professional affiliation of workers for the blind in North America, did not take the view that this was unnecessary legislation and that its purposes could have been achieved satisfactorily through private agencies for the blind. Rather did it, through its Legislative Committee endorse H. R. 4519 and urge its passage. So also did the Joint Legislative Committee of the American Association of Workers for the Blind and the American Association of Instructors for the Blind (of which I am secretary)

Whether there is one blinded veteran or whether there may be several hundred, we view the matter as one of federal responsibility, supplementing other provisions (including those in Public Law 16 of the 78th Congress) for a comprehensive program of vocational rehabilitation for blinded soldiers. Having given their sight in the service of their country, blinded veterans should not be left to depend on the caprice or ability of the private agency to offer them such services and in such individually selected cases as these private agencies may desire or be able to accommodate. Rather does the American people, through its government, owe it to these veterans to assure that nothing is left undone to secure their rehabilitation, as a matter of right through law, not because of public largesse in response to agency begging in their behalf.

Prior to the enactment of this legislation there developed in various parts of the United States many sporadic movements claimed by their sponsors to be for the purpose of furnishing guide dogs to blinded veterans. In connection with these movements many false and fraudulent representations were made both as to the overall number of blinded service personnel and as to individual cases. The public has been victimized by some of these appeals and generally speaking there has been an "open season" on blinded soldier appeals which has had the effect of degrading the veterans and of fostering the idea that their government has neglected them and that consequently private agencies have felt compelled to beg in their behalf. This legislation will now protect both the blinded veterans and the public against such appeals. Self interest was largely in evidence on the part of those opposing it.

As enacted the legislation simply places a ceiling of \$1,000,000 on the amount which may be spent for the purposes outlined. It does not require the expenditure of this amount and unless needed the sum may not all be spent. But whether there are few or many blind veterans it should be remembered that dogs can serve only for limited periods and that replacements will be necessary and can be provided through this measure. Incidentally, in the opinion of many, considerably more than 10 per cent of the blinded veterans will be found able and eager to use a dog. The factors involved differ materially from the civilian problem.

What is the alternative? In most cases guide-dog schools serving the civilian blind have expressed a willingness to give

priority to the blind veteran, but some still require payment by the veteran of the sum charged to civilian blind, usually \$150, representing only a small part of the cost the rest of which is provided through public contributions to these private agencies. We can find no reason why blinded veterans should be expected to pay \$150 for a dog and a similar sum every seven or eight years for a replacement or for the private agency to be continually obliged to beg for funds to make up additional costs connected with the furnishing of dogs—which appeals, like the brook, might go on for ever.

The blind veteran is entitled to every necessary service which a grateful country can by law make available to him and those who oppose such legislation would do well to ask themselves whether they prefer that we indulge in private begging as the alternative to federal responsibility.

Your statement that the total blinded in the first world war had been well under 500 for both Great Britain and the United States is quite inaccurate. My good friend Lieut. Col. Sir Ian Fraser, chairman of St. Dunstan's, has many times stated that nearly 800 British and Empire service personnel were blinded in the period 1914-1918, and that there were approximately 2,200 more postwar cases of service connected blindness. And more than a year ago he reported 310 cases of service and civilian blinded in Britain in the present war, a figure in excess of Brigadier General Hillman's and one now already considerably surpassed.

ALFRED ALLEN, Winnetka, Ill.

Secretary General, American Association
of Workers for the Blind

[NOTE—The letter was referred to the Office of the Surgeon General, which submits the following comment.]

To the Editor—The comments of Mr. Alfred Allen of the American Association of Workers for the Blind are carefully considered and most convincing. All are agreed that service personnel who lose their eyesight in the service of their country must have the very finest medical and surgical care and the very best opportunity for complete rehabilitation. We would believe, as was stated so ably in General Hillman's article, that the decision to employ guide dogs should not be made until the man has received a good bit of training himself. Whether it is proper for the soldier to receive a guide dog through a reputable private agency or whether it is better that the dog and the training be supplied by the federal government is a matter of opinion. Such opinions, moreover, are often related to political philosophy. Several guide dog agencies have agreed to provide a fully trained dog and the training for the man at no cost or at a nominal fee. It is true that only one of the guide dog agencies has in its agreement the provision of replacement of the dog without additional cost. It is believed further, that the pension paid for blindness acquired as a result of military service is adequate to meet the usual expenses, it would not be fair to speak of "begging" in view of this fact.

As to the statistics of blindness in World War I, General Hillman's paper in the June 3 issue of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* reads as follows: "As a result of World War I France in 1922 had 2,200 blinded pensioners. Great Britain had slightly under 3,000." The present figures for blindness in Great Britain are not known. Some months ago the unofficial figure of 288 was reported to this office through a reliable source. We regret that we have no means at hand to give you accurate data for Great Britain's present problem.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, July 8, page 748.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various centers, Aug. 7-9 and Nov. 13-15. Part III. Various centers, September or October. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Part I. Various centers, Jan. 19. Final date for filing application is Oct. 21. Sec., Dr. P. M. Wood, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. Various centers, Oct. 16. Candidates in military service may take examination at their place of duty. Final date for filing application is August 15. Asst. Sec., Dr. W. A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written*. Part I. Various centers, February. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 5-7. Los Angeles, January. Final date for filing application is Oct. 1. Sec., Dr. S. Judd Beach, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and Written*. Part I. Chicago, Oct. 13-14. New Orleans, Sept. 29-30. New York, Oct. 6-7. San Francisco, Oct. 20-21. Final date for filing application is August 1. Sec., Dr. G. A. Caldwell, 3503 Prytania St., New Orleans.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral*. Chicago, Oct. 4-7. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Sept. 22. *Oral*. St. Louis, Nov. 8-9. New York, Dec. 15-16. Final date for filing application is Aug. 15. Sec., Dr. C. A. Aldrich, 115½ First Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: *Oral*. New York, December. Final date for filing application is Sept. 30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N.W., Washington 6, D. C.

AMERICAN BOARD OF SURGERY: *Written*. Part I. Various centers, October 25. Final date for filing application is August 15. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Burns Inflicted in Taking Roentgenogram; Technician as Employee of Roentgenologist.—McLaughlin went to the physician defendant, "an x-ray specialist," to have roentgenograms made of his teeth. The physician turned the patient over to a technician in his employ to take the indicated films. In accordance with the technician's instructions, the patient lay on a table, apparently under an "x-ray machine," held a piece of film behind a tooth with his thumb, and moved his head from side to side as the technician directed while the technician moved the machine to obtain the proper angle. According to the patient:

In moving the machine over she hit me here on the finger—right here on that finger, and when she did the fire and the shock all occurred just at one time . . .

The shock seems to have thrown the patient off the table on to the floor and he received burns on his finger, arm and stomach, and his underclothing caught fire. The physician, so the patient testified in the suit he subsequently instituted against the physician, stated, in explaining the incident to him, that "the machine must have come in contact with his belt buckle or tie clasp." From a verdict and judgment of \$2,000 in favor of the patient, the physician appealed to the Supreme Court of Arkansas.

The physician contended, first, that he was not liable for the negligence, if any, of the technician, relying on *Runyan v. Goodrum*, 147 Ark. 481, 228 S. W. 397, 13 A. L. R. 1403. In that case the physician-defendants, Drs. Runyan, Kirby and Sheppard, operated a hospital in which they maintained an x-ray department under the immediate supervision of a physician who was an "x-ray specialist," and this physician had a woman assistant who actually operated the x-ray machine. The plaintiff in that case was burned by the woman assistant and sued Drs. Runyan, Kirby and Sheppard. The physicians were held not to be liable for the negligence of the woman assistant of the "x-ray specialist" on the ground that the relation of master and servant did not exist between them and the woman assistant of the roentgenologist.

The Supreme Court, however, did not believe that the doctrine announced in the *Runyan* case could be applied to the facts in this case. In this case, said the Supreme Court, the physician is himself an "x-ray specialist" and is not a general practitioner, and the patient availed himself of his services because of his reputation for skill and knowledge as a roentgenologist. The patient did not know the technician and relied, not on her knowledge and skill, but on that of the physician. While the technician was doing the manual work of operating the x-ray machine, it appeared that the machine was separated from the part of the office in which the physician was at the time by a partition that did not entirely cut off the physician's view, and the technician was in sight of the physician while she was operating the x-ray machine. The proof established the relation of master and servant between the physician and the technician so as to render the physician liable for injury caused by the technician's negligence. As was said in *Shearman and Redfield on Negligence*, vol. 1, p. 350:

It is an old and thoroughly established doctrine that, where the relation of master and servant exists, the master is responsible to third persons for injuries resulting from wrongful acts or omissions of a servant within the scope of his employment in the master's service.

And, again, in 48 C. J. 1137, this statement appears:

A physician is responsible for an injury done to a patient through the want of proper skill and care in his assistant, apprentice, agent or employee.

The court also cited *Kelly v. Yount*, 338 Pa. 190, 12 A. (2d) 579, in which "an x-ray specialist" was held liable for injuries sustained by the negligence of his assistant, who was a skilled x-ray technician.

The physician contended next that there was no proof that any negligence on his part or on the part of his technician caused the patient's injuries. The technician testified that she was not standing by the table when the patient received the shock but that she was standing at a control cabinet about 6 feet away and that she did not cause the patient to receive the shock by moving the tube, as the patient testified. There was some testimony tending to show that it was improbable that the patient could have received a shock in this manner. The physician argued that the patient raised his hand up in some way about 14 inches and touched the tube, thereby causing the shock. The patient denied this and testified that the electric shock was caused by the technician pushing the tube against him. It was within the province of the jury, said the Supreme Court, to settle the conflict in the testimony, and the jury saw fit to accept the patient's version. Furthermore, it is not denied that the patient did receive an electric shock while he was on the physician's table and that the shock was caused in some manner by the x-ray machine. That being true, it did not devolve on the patient to show the exact cause of the injury. In *Kelly v. Yount*, previously cited, the Supreme Court of Pennsylvania, in discussing the rule as to the burden of proof in a case of this kind, said:

When the thing which causes the injury is shown to be under the management of the defendants, and the accident is such, as in the ordinary course of things, does not happen if those who have the management use proper care, it affords reasonable evidence, in the absence of explanation by the defendants, that the accident arose from a want of care . . .

The court concluded, accordingly, that there was substantial evidence to support the finding of the jury that the patient's injury was caused by the negligent operation of the x-ray machine.

However, the court considered the damages awarded excessive and ordered the judgment reversed and the cause remanded for a new trial unless the patient would consent to a remittitur of \$1,000.—*Gray v. McLaughlin*, 179 S. W. (2d) 686 (Ark. 1914).

Society Proceedings

COMING MEETINGS

National Medical Association, St. Louis, Aug. 14-17. Dr. John T. Given, 1108 Church St., Norfolk, Va., Secretary.
Utah State Medical Association, Salt Lake City, August 24-26. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below

American Heart Journal, St. Louis

27:433-610 (April) 1944. Partial Index

- Reexamination of 4,994 Men Rejected for General Military Service Because of the Diagnosis of Cardiovascular Defects. Individual Reports by Chairmen of Special Medical Advisory Boards in Five Cities in Which the Combined Study Was Made. G. K. Fenn, W. J. Kerr, R. L. Levi, W. D. Stroud and P. D. White—p. 435
- Detailed Analysis of Electrocardiograms of 500 Royal Canadian Air Force Aircrew. C. B. Stewart and G. W. Manning—p. 502
- *Analysis of Electrocardiograms Obtained from 1,000 Young Healthy Aviators. A. Graybiel, R. A. McFarland, D. C. Gates and F. A. Webster—p. 524
- Some Observations on Cardiovascular Examination for Aircrew Fitness. D. P. Murnaghan—p. 550
- Cardiovascular Experiences in an Army General Hospital. R. R. Porter—p. 559
- Cardiac Problems in Station Hospital. M. G. Brown—p. 565
- Heart Diseases and Disorders as Causes for Evacuation from South Pacific Combat Area. H. B. Sprague and S. McGinn—p. 568
- *Some Practical Aspects of Rheumatic Fever Problem Which Have an Important Bearing in Military Medicine. B. F. Massell and T. D. Jones—p. 575
- Foreign Bodies In and About the Heart. E. F. Bland—p. 588
- Cardiovascular System in Traumatic Shock. S. S. Kety and A. Pope—p. 601.

Electrocardiograms from Aviators.—Graybiel and his associates present an analysis of electrocardiographic findings in 1,000 young aviators. This was a highly selected group of men between the ages of 20 and 30 years. None had cardiac defects on physical and x-ray examination. The electrocardiograms were taken with the subject recumbent and, with a few exceptions, in the basal state. The results emphasize great individual variations in the electrocardiographic pattern and a wide range of normal values. Even after rejecting as frankly abnormal some of the extreme values observed, it is apparent that the "normal" extends well into what has commonly been regarded as the abnormal range.

Rheumatic Fever Problem.—Massell and Jones call attention to the close relationship between epidemic hemolytic streptococcus infections and rheumatic fever and point out that rheumatic fever in a given population follows closely the epidemiology of hemolytic streptococcus infections. This pattern is so convincing that it forms the basis of prevention programs. These programs are discussed, with special emphasis on the careful study of respiratory infections from a bacteriologic point of view. Culturing, grouping and typing of such infections offer a key to the streptococcus problem. The use of sulfonamides prophylactically is discussed, and other preventive measures are mentioned.

American J. Digestive Diseases, Fort Wayne, Ind.

11:141-172 (May) 1944

- Endometriosis of Rectosigmoid. Report of Case with Review of Literature. S. Ben Asher—p. 141
- Direct Van Den Bergh Reaction in Mixtures of Normal and Jaundiced Serum. A. Cantarow—p. 144
- Role of Fat Soluble Vitamins A and D in Nutrition. J. Buckstein—p. 147.
- Clinical and Radiologic Observations Concerning Large Pendulum Movement of Colon. A. Galambos—p. 151
- Reflections on Geriatrics in Internal Medicine. M. Golob—p. 159.
- Changes in Liver Function Test During Sulfonamide Therapy. Marie A. Andersch—p. 162.

Delaware State Medical Journal, Wilmington

16:35-50 (March) 1944

- Plastic Surgery of War Wounds and Burns. J. B. Brown—p. 35.
- Reconstructive Surgery of War Injuries. S. T. Snedecor—p. 39.

Endocrinology, Springfield, Ill.

34:215-300 (April) 1944

- Relation of Age to Reactivity in Reproductive System of Rat. Dorothy Price and Evelina Ortiz—p. 215.
- Effect of Estrogens of Peripheral Blood and Bone Marrow of Mice. L. O. Jacobson—p. 240
- Uptake of Radioactive Iodine by Thyroids of Rats Made Goitrous by Potassium Thiocyanate and by Thionitril. R. W. Rawson, J. F. Tannheimer and W. Peacock—p. 245
- Effect of Small Doses of Diethylstilbestrol on Anterior Hypophysis of Immature Rat. B. L. Baker and N. B. Everett—p. 254.
- Effect of Thionitril on Formation of Thyroxine and Diiodotyrosine by Thyroid Gland of Rat with Radioactive Iodine as Indicator. A. L. Franklin, S. R. Lerner and I. L. Chaikoff—p. 265
- Estrogen Progesterone Induction of Sexual Receptivity in Sprayed Female Mouse. J. R. Ring—p. 269
- Effect of Light on Maturation and Estrous Cycle of Cotton Rat, *Sigmodon hispidus hispidus*. B. J. Meyer and R. K. Meyer—p. 276
- Effect of Thionitril on Iodine Content of Thyroid Gland. E. B. Astwood and Adele Bissell—p. 282.

Hawaii Medical Journal, Honolulu

3:109-154 (Jan.-Feb.) 1944

- Early Diagnosis of Leprosy. As Seen in Hawaii. N. R. Slorn—p. 111
- *"Kissing Bug Bites." H. L. Arnold Jr. and D. B. Bell—p. 121.
- Industrial Hygiene in Hawaii. Review of Industrial Hygiene Program of Board of Health. F. L. Schramm—p. 123
- *Novocaine Injection for Low Back Strain. W. L. Argo—p. 133.

"Kissing Bug Bites."—Arnold and Bell report the histories of 2 women who presented a clinical syndrome suggestive of cellulitis with lymphangitis and regional lymphadenitis. Both of them gave a history of being bitten by *Triatoma rubrofasciata*, which belongs to the Reduviidae, whose habits are well described by the lay names of assassin bugs, cannibal bugs and pirate bugs. Their methods of attack may be inferred from the names Mexican bedbug, giant bedbug or kissing bug. The term "kissing bug" has reference to the fact that the bite is usually inflicted on exposed portions of sleeping victims, on the face, and particularly on the lips. The kiss is painless at the moment. It is only after the animal's withdrawal that itching and burning develop, and still later that the painful swelling supervenes along with lymphangitis and lymphadenitis. As suggested by the reviewed cases, shallow incision of the swollen bite site seems to have a favorable effect on the course of the symptoms. The bug's presence in Hawaii constitutes a public health hazard, since it is an important vector of American trypanosomiasis.

Procaine Hydrochloride Injection for Low Back Strain.

—Argo says that one of the most troublesome problems encountered in the ambulatory patient, whether military or civilian, is that of low back pain following lumbosacral strain. This type of low back strain usually occurs in the ligaments which resist forward rotation of the upper sacrum: the lumbosacral, the interosseous sacroiliac and the short and long posterior sacroiliac ligaments. Some element of muscular and myofascial strain occurs coincidentally with the ligamentous damage, but in the light of physical examination of the patient it is felt that the clinical picture is referable almost entirely to the ligaments themselves. It has been shown by Badgley and by Steindler that the pain is due to irritation of sensory nerve endings in the ligaments involved. These structures are supplied by the posterior division of the spinal nerve. The most workable concept of the pain in these cases is that of referral, with afferent impulses originating in the damaged ligament being reflexly distributed to other postaxial nerve trunks. The traumatized ligament acts as a trigger point initiating discharge of the pain impulses. This concept is well borne out by symptoms usually presented by the patient and by subsequent disappearance of the pain following breaking of the reflex by local procaine hydrochloride injection as suggested by Kellgren and Steindler. The author describes the technic of injection and the manipulation carried out following it. In 25 of 34 cases treated by this method a single injection was sufficient to effect a cure, with no recurrence after six months of observation. In 4 instances injection was repeated the following day with cessation of symptoms; in 1, recurrence of symptoms after three weeks necessitated an additional injection. In 3 cases in which a rheumatic component was present injections were made for diagnostic purposes and were failures from a therapeutic standpoint.

Indiana State Medical Assn. Journal, Indianapolis**37:225-278 (May) 1944**

- Glaucoma: Review of Symptoms. E. L. Van Buskirk.—p. 225.
 Gonioscopy. B. J. Larkin.—p. 228.
 Eye Accident Management. J. V. Cassidy.—p. 230.
 Role of Family Physician in Care of Ophthalmic Surgical Cases. C. P. Clark.—p. 232.
 Tuberculosis and the Eye. H. B. Smith.—p. 233.
 Epiphora. L. F. Swihart.—p. 236.
 Spinal Anesthesia for Cesarean Section. Lillian B. Mueller.—p. 238.
 *Specific Vaccine Therapy of Chronic Brucellosis. J. F. Griggs.—p. 241.

Vaccine Therapy of Chronic Brucellosis.—Griggs presents an analysis of 100 consecutive cases of chronic brucellosis which were treated with various brucella vaccines and filtrates. The usual forms of brucella vaccine therapy were complicated by the appearance of hypersensitivity in at least 25 per cent of the cases. The author made quantitative studies on the increase in hypersensitivity which is caused by tissue necrosis. He found that increasing hypersensitivity can be avoided and that desensitization is frequently possible if sufficiently minute doses of oxidized brucella vaccine are used (much less than 1 bacterium at first). Clinical improvement follows desensitization, even in stubborn cases which do not exhibit a high skin sensitivity. Desensitization and immunization have given encouraging results when done alternately and repeatedly in the same case. Good results have followed the various methods of specific vaccine therapy in 80 per cent of the cases. Since adopting the improvements reported in this paper, good results have been obtained in 85 to 95 per cent of 200 additional cases.

Journal of Experimental Medicine, New York**79:463-558 (May) 1944**

- Studies on Lymphogranuloma Venereum: II. Association of Specific Toxins with Agents of Lymphogranuloma-Psittacosis Group. G. Rake and Helen P. Jones.—p. 463.
 Titration of Influenza Virus in Chick Embryos. C. A. Knight.—p. 487.
 Isolation from Normal Mice of Pneumotropic Virus Which Forms Elementary Bodies. Clara Nigg and M. D. Eaton.—p. 497.
 Effect of Chemical Carcinogens on Virus-Induced Rabbit Papillomas. P. Rous and W. F. Friedewald.—p. 511.
 Heterogeneous Antibodies in Acute Hepatitis. M. D. Eaton, W. D. Murphy and V. L. Hanford.—p. 539.

Journal of Oral Surgery, Chicago**2:99-192 (April) 1944. Partial Index**

- Significance of Blood Dyscrasia in Oral Surgery. F. A. Henny.—p. 106.
 Problems of Toxicity in Sulfonamide Therapy. R. H. Lyons and R. S. Van Harn.—p. 118.
 Management of Early Acute Dentoalveolar Infections. B. B. Cook.—p. 128.
 Further Studies on Effect of Prophylactic Use of Sulfathiazole and Sulfamerazine on Bacteremia Following Extraction of Teeth. P. M. Northrop and Mary C. Crowley.—p. 134.
 Blood and Lymph Vessel Tumors Involving Mouth. D. H. Bellinger.—p. 141.
 Nitrous Oxide-Oxygen Anesthesia in Office Practice. J. D. Sullivan.—p. 152.
 Dry Socket Problem. V. H. Eman.—p. 158.
 *Histoplasmosis: Report of Case. J. W. Kemper and H. J. Bloom.—p. 167.
 Actinomycosis: Report of Cases. O. H. McConnell.—p. 173.
 Ameloblastoma (Adamantinoma) of Mandible: Report of Case. R. O. Dingman.—p. 175.

Histoplasmosis: Report of Case.—A man aged 59 entered the hospital complaining of sores on the tongue and upper lip which had had their onset four months before. The lesions persisted throughout the period of hospitalization. Pharyngeal and laryngeal lesions of a similar character developed with hoarseness and cough. There was remittent septic fever, with excessive fatigue, weakness and loss of weight. All lesions were repeatedly submitted to biopsy. In sections stained by the Giemsa method numerous small yeastlike inclusions were noted chiefly in the reticuloendothelial cells. They could not be definitely identified. The close resemblance of the disease process to histoplasmosis was considered despite failure to substantiate it. The patient received iodides, bismuth, antimony and stibamine glucoside, in addition to sulfanilamide, sulfathiazole and sulfadiazine in full therapeutic dosage for trial periods. Germicidal and parasiticidal solutions were applied topically. The diet was heavily fortified with iron and vitamin concentrates. Radiation therapy was instituted, 900 roentgens being applied to the lip, face and neck fields. Death from cardiac failure ensued six months after the first admission and ten months

after the onset of symptoms. Microscopic postmortem studies revealed *Histoplasma capsulatum* in the adventitia of the smaller blood vessels in the cortex of the brain and in a few mononuclear phagocytes in the leptomeninges. *Histoplasma capsulatum* was demonstrated in some mononuclear phagocytes in the granulation tissue of the lingual ulcer. An ulcer at the base of the epiglottis showed an occasional *Histoplasma capsulatum* organism in plasma cells, lymphocytes and giant cells. Many of the organisms were seen in the lymphocytes, plasma cells and large mononuclear phagocytes in the granulosomatous tissue of the laryngeal mucosa. Large mononuclear phagocytes in the red pulp of the spleen contained *Histoplasma capsulatum*. The liver showed four bodies resembling *Histoplasma capsulatum*. Giemsa stained sections of the ureters showed two *Histoplasma* organisms.

Journal of Pediatrics, St. Louis**24:371-482 (April) 1944**

- *Studies of Amino Acid Administration: II. Clinical Uses of an Enzymatic Digest of Casein. A. F. Hartmann, H. J. Lawler and C. S. Meeker.—p. 371.
 Relation of Pancreatic Achylia to Meconium Ileus. S. Farber.—p. 387.
 Polyneuritis of Unknown Etiology in Childhood. A. Hatoff.—p. 393.
 Weight of Negro Infants. H. Bakwin and T. W. Patrick Jr.—p. 403.
 *Influenzal Meningitis: Review of 15 Cases, with 2 Unusual Cases Reported in Detail. S. S. Lamm and B. H. Shulman.—p. 408.
 Study of Serum Lipids in Celiac Syndrome. L. Luzzatti and A. E. Hansen.—p. 417.
 Effect of Vitamin A on Reproduction in Dogs on Milk Diets. C. A. Elvehjem, J. E. Gonce Jr. and G. W. Newell.—p. 436.
 Dermatopathic Lymphadenitis in Infantile Eczema. V. DePaul Larkin. P. A. DiSant Agnese and M. N. Richter.—p. 442.
 *Double Ova Pregnancy in Which Rh+ Twin Developed Erythroblastosis. Edith L. Potter.—p. 449.
 Epidemic of Common Infectious Jaundice. K. W. McLeod.—p. 454.

Amino Acid Administration.—Hartmann and his associates employed amino acids ("Amigen") prepared by digestion of casein with pork pancreas in the treatment of 300 patients. Amigen was usually combined with glucose or other solutions. These solutions were used in the treatment of dysentery, diarrhea, pyloric stenosis, intussusception, celiac syndrome, chronic glomerulonephritis, prematurity and many other conditions. Their use orally or parenterally prevents or reduces loss of body protein in children who are unable to derive adequate nutrition from natural foods taken by mouth. When used with glucose and vitamins it makes possible complete parenteral feeding over long periods, as has been shown in a case of tetanus. In combination with glucose and "buffer" solution it is of value in the resumption of enteral feedings in cases of intestinal irritation such as dysentery, "parenteral" diarrhea, peritonitis and postoperative conditions. In the presence of actively functioning kidneys its salt content makes it of some value in the maintenance of acid-base balance. To avoid undesirable reactions it is necessary to be aware of the following limitations: 1. The pH 6.5 solution is relatively more acid than the body's fluids and its parenteral use is not indicated in the presence of untreated acidosis and oliguria. 2. Solutions more concentrated than 3.5 per cent are hypertonic and may be locally irritating. This has not proved an obstacle to the subcutaneous use of more concentrated solutions. 3. Too rapid intravenous administration first produces a facial flush and a sensation of warmth, then a spreading flush over the body, nausea, vomiting and perhaps fever. To avoid this, a slow intravenous drip is recommended. 4. In infants the subcutaneous route is to be preferred to the intravenous one for these reasons: It is vastly easier technically, and the fluid is absorbed at a rate governed by the child's ability to handle it. 5. Concentrated solutions are absorbed rather slowly subcutaneously. 6. Severe dehydration or the presence of a very low plasma protein or a poor peripheral circulation after hydration is a contraindication to the subcutaneous administration of a solution of crystalloids such as the amigen-glucose mixtures.

Influenzal Meningitis.—Lamm and Shulman report 15 cases of *Haemophilus influenzae* meningitis treated in the pediatric wards of the Kings County Hospital and the Long Island College Hospital during the six year period from 1938 to 1943. Nine of the patients recovered. Of the 6 deaths, 2 occurred in patients who were in the hospital for but seven and fourteen hours respectively. Most deaths occurred among children under 2 years of age. Two cases are reported in detail. In 1 of these

the condition was complicated by agranulocytosis, and in the other a relapse occurred after an apparent recovery. The latter case emphasizes the necessity of prolonged drug therapy. As soon as the diagnosis of *H. influenzae meningitis* was established by a gram-stained smear, blood culture spinal fluid culture or a positive Neufeld's quellung reaction with type specific anti-influenzal rabbit serum, the patients were started on intravenous injections of 5 per cent sodium sulfapyridine. The initial dose was from 2 to 3 Gm, depending on the child's age and weight. When the patients were able to retain oral medication, sulfapyridine was given in periodic maintenance doses. Blood counts and urine analyses were repeated every third or fourth day. Daily urine examinations and blood counts were made when there was evidence of drug toxicity. Within twenty-four hours after admission the patient received from 10 to 15 cc. of anti-influenzal rabbit serum after a negative intradermal skin test. The serum, diluted with isotonic solution of sodium chloride or isotonic solution of three chlorides, to which had been added 1:1,000 epinephrine, was given intravenously. Whenever the patient received adequate amounts of sulfapyridine with a poor response, the drug was changed. Sulfadiazine and sulfathiazole were used as alternates. All patients received frequent small blood transfusions during the critical phase of their illness. Chemotherapy was continued from two to three weeks after the blood and spinal fluid cultures became sterile and the clinical course of the patient was satisfactory, in order to avoid relapses.

Double Ova Pregnancy in Which Rh+ Twin Developed Erythroblastosis.—Potter reports that in May 1943 twins were born at the Chicago Lying-In Hospital to a normal woman aged 32 who had had one uneventful pregnancy nine years previously. The twins were males, the placentas and amniotic sacs were separate. One infant survived and was entirely normal, the other died of erythroblastosis on the second day of life. The mother has shown no anti Rh agglutinins but is OMN Rh—; the father, ON Rh+; the 9 year old daughter, O Rh+; the living infant, OMN Rh— the dead infant, OMN Rh+. It is contended that the father was heterozygous for the Rh factor and that two ova were fertilized, one by a sperm carrying an Rh+ gene and the other by a sperm carrying an Rh— gene. The Rh— mother had been sensitized to the Rh factor either in the previous pregnancy, when an Rh+ fetus had been carried, or possibly during the course of this pregnancy by the Rh+ twin. The antibodies produced in the mother passed through the placentas of both fetuses but affected only the one which was Rh+. The cells of the Rh+ fetus contained the Rh antigen and could be agglutinated by the Rh antibodies; the cells of the Rh— fetus contained no antigen and therefore could not be agglutinated. The fetus whose cells were agglutinated developed erythroblastosis, the one whose cells were not agglutinated remained well.

New England Journal of Medicine, Boston

230:477-500 (April 20) 1944

- Papillomatosis of Larynx in Childhood. Report of 15 Cases. C. F. Ferguson and H. W. Scott Jr.—p. 477
 *Causalgia and Gangrene: Rare Complications in Meningococcal Meningitis. Report of Case. P. Bernstein—p. 482
 Vomiting of an Open Safety Pin. E. B. Benedict—p. 484
 Inhalation Therapy. M. S. Segal—p. 485

Causalgia and Gangrene in Meningococcal Meningitis.—Bernstein reports the history of a woman aged 34 who had cerebrospinal meningococcal meningitis. Two unusual complications were present, purpuric dry gangrene of the toes and scattered areas of the skin, and causalgia of the right upper extremity. These complications became manifest after the initial fulminating attack had subsided. The lesions caused protraction of disability for four months. That there was a common etiologic basis for these pathologic changes is uncertain and difficult to maintain. No stained slides demonstrating meningococci were made from either the skin or the toe lesions. The cause was probably a trophic disturbance based on a widespread vascular lesion produced by a peripheral thrombosis or by a peripheral vasospasm from an exotoxin. The pain associated with the gangrene was probably due to peripheral neuritis. The syndrome in the right arm may be attributed to causalgia. The

paradox of severe pain in the arm and hand associated with only minor pathologic changes, and the uncertainty whether the etiologic factor was neurogenic, vascular or psychic, warrant a diagnosis of causalgia.

Oklahoma State Medical Assn. Jour., Oklahoma City

37:93-142 (March) 1944

- Surgical Indications in Glaucoma. D. V. Crane—p. 93
 Clinical Importance of Refractive Errors. A. C. McFarling—p. 96.

37:143-192 (April) 1944

- Surgical Complications of Pregnancy and Their Management. G. Rogers—p. 143
 Androgen Therapy in Female. J. W. Lynch—p. 149
 Anatomic Pathways for Metastatic Spread of Cancer of Breast. E. Lichman—p. 153
 Caudal Anesthesia Catheter Method. L. C. Northrup and H. Orr—p. 157.

Rhode Island Medical Journal, Providence

27:153-204 (April) 1944

- Observation on Beriberi. T. B. Cutts—p. 161.
 Common Cold. Reflective Bodies as Diagnostic Aid. H. L. C. Weyler—p. 163

27:205-256 (May) 1944

- Newer Developments in Clinical and Laboratory Aspects of Lymphogranuloma Venereum. C. H. Mann Jr.—p. 213
 Blood Transfusion and Blood Bank in Small Hospital. O. T. Smith—p. 217.
 An Intern Learns of Penicillin. C. M. Gordon—p. 219
 Crooked Teeth. D. D. Osborn—p. 220

Rocky Mountain Medical Journal, Denver

41:225-296 (April) 1944

- *Preliminary Report on Clinical Use of Vitamin A in Treatment of Hypertension. A. Pond and A. M. Rosen—p. 242
 In Selection of Medical Students What Makes a Good Doctor? A. C. Callister—p. 245
 Peritoneoscopy. K. B. Castleton—p. 247
 Employment of Women in Industry from Health Standpoint. L. E. Viko—p. 251

Vitamin A in Treatment of Hypertension.—Pond and Rosen administered 200,000 units of vitamin A daily to patients with essential hypertension, as suggested by Govea-Peña and Villaverde. There was a gradual fall in blood pressure of 10 patients. The majority of these responded favorably over long periods of time. There were no untoward reactions. Some investigators suggest that the fact that vitamin A in high dosage raises the urea clearance of dogs 40 per cent above normal may indicate that the vitamin may disturb the pathophysiologic pressor mechanisms produced by renal artery constriction. Another possibility is that the anti-hypertensive action of vitamin A may be totally unrelated to its specific vitamin effects and that one or more chemically related compounds with little or no vitamin action may prove to be more effective than vitamin A as hypotensive agents.

War Medicine, Chicago

5:203-206 (April) 1944

- Water Balance of Survivors of Shipwreck in Tropical Waters. P. H. Fletcher, W. V. Consolazio and N. Pace—p. 203
 Survey of Hemolytic Streptococcus Infections at Camp Borden, Ontario, 1943. I. Epidemiology. W. R. Feasby and E. T. Bynoe—p. 207.
 Id. Clinical Features. W. R. Feasby—p. 216
 New and Simple Instrument for Administration of Fluids Through Bone Marrow. H. Turkel and F. H. Bethell—p. 222.
 Study of Early Syphilis and Results of Treatment in United States Navy. G. H. Ekblad—p. 226
 Factors in Recovery from Injuries to Head. J. Fetterman—p. 232
 Congenital Heart Disease. N. G. Sloane and M. A. Mathias—p. 238

Western J. Surg., Obst. & Gynecology, Portland, Ore.

52:139-196 (April) 1944

- Normal and Hyperactive Ovary in Menstrual Cycle and in Hyperplasia. C. G. Hartman—p. 139.
 Maternity Leave and Maternity Care Practices in Industry. Charlotte Silverman—p. 152
 Frog Test (Xenopus Laevis) for Pregnancy. Report on 1,000 Tests Over a Period of Four Years of Study. A. I. Weissman and Christopher W. Coates—p. 171.
 De Senectute (Marcus Tullius Cicero). I. Loomis—p. 175
 Vagaries and Historical Backgrounds in Obstetrics. C. C. Schruiffier—p. 182

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Helvetica Medica Acta, Basel

10:729-830 (Dec.) 1943. Partial Index

*Influence of Gas Mask Respiration on Electrocardiogram and Circulation in Human Subjects. H. Schütz.—p. 739.
Suicide After Cranial Trauma. M. Maire.—p. 783.

Influence of Gas Mask Respiration on Electrocardiogram and Circulation.—Schütz investigated the influence exerted on the electrocardiographic record by breathing through a gas mask in 29 persons between the ages of 20 and 61. Gas mask respiration caused slight changes in all sections of the electrocardiographic curve. The electrocardiographic record taken during rest showed during mask breathing such changes as are observed during mild work. The exertion electrocardiograms differ little whether taken with or without a mask. There were no changes that indicated oxygen lack or coronary insufficiency. Of 15 persons the pulse frequency and blood pressure at rest under the mask indicated that mask respiration requires slightly more exertion than does ordinary breathing. After work tolerance tests the systolic blood pressure showed a considerable increase, but there were no indications of a deficient oxygen supply. Respiration was usually deeper and slower. The minute volume of the respiration during rest was studied on 10 persons with and without a gas mask. The majority showed an increase in the minute volume. Gas mask respiration forces the organism into compensating changes such as are caused by the accumulation of carbon dioxide. Under the gas mask the limits of the reserves will be reached sooner than without the mask. This involves increased dangers for those with coronary defects. Slow and deep respiration decreases the danger considerably because deepening the respiration has a much more economic effect than increasing its frequency.

Praxis, Bern

32:661-674 (Sept. 16) 1943

*Promotion of Climatotherapy in Switzerland by Creation of Climato-therapeutic University Clinics. M. Petitpierre.—p. 661.

Climatotherapy in Switzerland.—The most important successes of high altitude climatotherapy in Switzerland in the last eighty years, according to Petitpierre, have been the open air treatment of pulmonary tuberculosis and heliotherapy of surgical tuberculosis. Climatotherapy is helpful in anemia, particularly when the anemia has impaired resistance. It is indicated in exhaustion due to overwork or infectious foci, in convalescence from serious illness or from surgical operations, and in pleurisy. Climatotherapy has proved valuable in malaria and other tropical diseases. Severe forms of influenza, particularly those accompanied by exhaustion and tachycardia, postpneumonic residual empyemas, dysentery, acute rheumatism, measles and whooping cough, are indications for high altitude climatotherapy. A large number of disorders of the endocrine glands, of the sympathetic nervous system and of allergy are likewise benefited. High altitude climate has a future in heart and vascular diseases. Hypertension of nonrenal origin is one of the indications. Neurasthenia is favorably influenced. Other conditions in which the high mountain climate is likely to be of benefit are osteomyelitis, postoperative empyemas, poorly healing ulcers and bone fractures, conditions in which the local defense powers are deficient. Exudative diathesis, rickets, psoriasis, furunculosis, chronic urticaria and allergic eczemas are favorably influenced. Climatotherapy presents many unsolved questions. The establishment of special clinics for the study of climatotherapy by the Swiss universities is desirable.

32:725-738 (Oct. 14) 1943

Increasing Capacity for Physical Exertion by Administration of Organic Phosphorus Compound. R. M. Du Pan.—p. 725.
*Heredity of Pelger's Nuclear Anomaly. H. R. Schinz.—p. 730.

Heredity of Pelger's Nuclear Anomaly.—Pelger of Holland discovered in 1928 a peculiar blood picture characterized by an abnormal form and structure of the nuclei of the leukocytes. Whereas in the blood of normal persons about

25 per cent of the neutrophils have nonsegmented or bisegmented nuclei and 75 per cent have nuclei with more numerous segmentations, in persons with "Pelger" blood plurisegmented nuclei are entirely missing. In 1932 Huët of Holland established a simple dominant heredity for this anomaly. Persons with Pelger's nuclear anomaly were discovered in many different countries. There are fluctuations in the manifestation of the condition: in persons with the complete Pelger anomaly there are no neutrophils with more than two segments in the nuclei; "half Pelgers" have a certain percentage of neutrophils with trisegmented nuclei. "Full Pelgers" and "half Pelgers" are heterozygotic carriers of the Pelger gene. Schinz points out that in 1939 the Pelger anomaly was discovered in rabbits. Among 400 rabbits, 1 was discovered with a blood picture that corresponded to the Pelger blood picture in human subjects. Breeding experiments revealed that in rabbits too the Pelger anomaly is transmitted as a simple dominant non-sex linked characteristic. The penetrating power of the Pelger gene is 100 per cent. Homozygotic Pelger animals were rare, apparently because of high mortality. When the homozygotic "hyper Pelgers" could be kept alive, it was found that the nuclei of all leukocytes were round and pyknotic; the animals showed extreme developmental retardation; their vitality was greatly reduced; their long tubular bones were shortened and curved. No hyper Pelgers have been observed among human subjects.

Schweizerische Medizinische Wochenschrift, Basel

73:409-432 (April 3) 1943. Partial Index

Puberty and Disturbances of Puberty. H. Wissler.—p. 409.
Short Report of New Investigations on Anatomy of Vessels. E. Ludwig.—p. 413.
Phlegmons of Chest Wall After Bülow-Drainage of Pleural Empyema. L. Jeker.—p. 415.
Peptones and Lactic Acid in Therapy of Allergic Disturbances, with Particular Regard to Skin. F. Wyss-Chodat.—p. 417.
*Positive Mantoux Tuberculin Reaction in Differential Diagnosis of Active or Inactive Tuberculosis. H. Egli.—p. 420.
Dysentery Epidemic of Sonne-Kruse Type in Active Military Service. Zellweger.—p. 422.

Mantoux Tuberculin Reaction.—Egli used Mantoux's test for differential diagnosis of 40 doubtful cases of tuberculosis. Mantoux's method offers the possibility of injecting definite doses of tuberculin. Local, general and focal reactions may thus be prevented. A scheme of the employed phenol solutions of tuberculin is presented. Rise in temperature, depending on the extent of the activity of the tuberculous process, may be associated with a positive skin reaction manifested by a reddened area of 5 mm. or with the next concentrated dose and a local reaction in size from 10 to 30 mm. An eight days curve of temperatures taken prior to and after the tuberculin injection is required. The rise in temperature should be at least 0.3 degrees. Decrease in number of neutrophil leukocytes with rodlike nucleus revealed an obvious parallelism with the temperature test. The temperature test is positive in patients with definitely active tuberculous process. The temperature of convalescents is restored to normal at the same time at which the tuberculous focus becomes inactive. Positive temperature reaction does not occur in definitely healthy persons. In 90 per cent of the author's 40 cases the reliability of the temperature test was confirmed by roentgenologic examination, tomography, artificial pneumothorax, bronchoscopy, bronchography, culture of tubercle bacilli, animal inoculation and other laboratory methods.

Actas Dermo-Sifilográficas, Madrid

35:107-202 (Nov.) 1943. Partial Index

*Verrucous Erythematous Lupus: Case. E. Ledo Dunipe.—p. 107.
Hemolysis, New Test. U. Dominguez.—p. 115.

Verrucous Erythematous Lupus.—According to Ledo Dunipe verrucous erythematous lupus is rare. He reports a case in a man of 33 in whom the disease manifested itself shortly after he had become a cow herder. The condition developed slowly, with bouts of aggravation and long remissions. The lesions occupied symmetrical areas near the mouth and on the cheeks, forehead, ears, neck, mastoid region, nose and hands and were intractable. There were hypotension and signs of hypothyroidism. Tests for syphilis and tuberculosis were repeatedly negative. The therapy consisted in injections of bismuth

hydroxide and of local application of solidified carbon dioxide was given in series of two weeks, each followed by intervals of two weeks of rest. Local pruritus, infiltration and hyperkeratosis disappeared. The lesions gradually faded, and the horny layer desquamated. After nine months of this therapy the lesions have largely disappeared. The appearance of the skin in the clean areas was that of the skin of very old cow keepers. The author believes that the associated causal factors in the reported case were (1) a constitutional predisposition (2) an organic toxin and (3) a local irritation from prolonged exposure to the sun.

An. Cáted. de Pat. y Clín. Tuberc., Buenos Aires

4:207-396 (Dec) 1942 Partial Index

- *Bone Marrow in Allergic Rhinopathies S F Erdstein J C Rey and J A Bertelli—p 284
Thoracic Trauma and Pulmonary Tuberculosis R Cucchiari Acevedo—p 343
Bilateral Recurrent Benign Spontaneous Pneumothorax Etiopathogenesis J R Paso and J M Leston—p 364

Bone Marrow in Allergic Rhinitis—Erdstein and his collaborators report observations on 16 patients with allergic rhinopathies. The etiologic diagnosis of allergic rhinopathies is difficult. Eosinophilia in the peripheral blood and accumulation of eosinophils in the nasal secretion are not constant findings. An allergic reaction of the bone marrow of the type encountered in all allergic diseases is also encountered in allergic rhinopathies. It consists of an intense local eosinophilia with deviation to the left of the eosinophils, predominance of myelocytes and promyelocytes over that of normal leukocytes, increase in monocytes and plasma cells and phenomena of local toxicity, nuclear irritation, plasma basophilia, vacuolation and coarse granulation. The degree and acuteness of the bone marrow changes vary, but the reaction is present in all cases both during the course of the allergic disease and in the periods of improvement. The bone marrow reaction is of value for the pathogenic diagnosis of allergic rhinopathies as well as for the differential diagnosis of the various types of allergic rhinitis from spasmodic rhinitis and other types of the disease.

An. Disp. Púb. Nac. p. Enf. d. Ap. Dig., Buenos Aires

6:1 844 (1943) Partial Index

- Relations Between Angina Pectoris and Diseases of Digestive Apparatus R A Bullrich—p 169
*Gigantic Ulcers of Stomach C Bonomo Pero B D Alotto and H D Repetto—p 645
Gastroduodenal Ulcers in Children O Copello—p 811

Extensive Ulcers of Stomach—Bonomo Pero and his collaborators encountered extensive ulceration of the stomach in 18 out of 1,600 patients with gastroduodenal ulcers. The majority of these patients complained of lack of appetite and loss of weight. The ulcers presented irregular borders in roentgenograms and exceeded 4 centimeters in size. The nature of the ulceration and the therapeutic indications were determined by the therapeutic test, which consisted in putting the patient to bed, a proper diet, antispasmodics and vitamin C. Progressive clinical improvement and diminution of the niche in the roentgenogram indicated a benign ulcer and continuation of medical therapy. Failure of the test suggested cancer and called for surgical intervention. The authors found that cancer is more frequent in niches of the horizontal part of the lesser curvature than of the vertical part of the lesser curvature. Lack of appetite, progressive loss of weight, large size of the niche and irregular borders are of no differential value as between malignant and benign lesions. The therapeutic test is of value in the differential diagnosis and as an indication of the proper therapy.

Boletín de la Soc. Cubana de Pediatría, Havana

15:759 1176 (Dec) 1943 Partial Index

- *Blood Corpuscles in Nutritional Edema in Infants C Torres Umaña—p 775
*Familial Chronic Malignant Neutropenia with Atypical Granulations of Leukocytes A Beguez Cesar—p 900

Blood Corpuscles in Nutritional Edema—Torres Umaña observed 39 infants with nutritional edema. Hypochromic anemia, moderate leukopenia and a diminution in the number of the blood platelets, of blood albumins and hemoglobin was

encountered in all cases. Some patients presented hemorrhages of the oral mucosa which simulated stomatitis or purpura. The 12 patients with purpura had the lowest figures for blood platelets, with a grave prognosis. Mucosal hemorrhages and purpura paralleled the course of nutritional edema and were controlled in early cases by a diet rich in animal albumins. When nutritional edema runs a favorable course, the blood platelets increase up to normal figures. Purpura of nutritional edema is due to diminution in the number of blood platelets and hemoglobin caused by the insufficient amount of protein in the blood.

Familial Chronic Malignant Neutropenia—The reports by Beguez Cesar are the first of the type to be published. The family of 13 children was the offspring of a married couple of apparently normal and healthy persons. All the children were born at full term by normal deliveries. Nine patients were normal. Four were albinos and exhibited nystagmus. From the age of 2 years the patients began to suffer recurrent febrile attacks of a catarrhal rhinopharyngitis and moderate enlargement of the inguinal, axillary and cervical lymph nodes. The hemogram showed chronic neutropenia, leukopenia, lymphomonocytosis and atypical granulations in the leukocytes. The latter were of a type not previously described. They were encountered in the leukocytes of the father's blood and of all the 13 children but not in those of the mother and her family. The Paul and Bunnell tests for monocytic angina were positive in the patients. The early attacks were controlled by antianemic and anti-infectious therapy, blood transfusions from one of the maternal uncles and a proper diet. The final stage, which occurred between the ages of 4 and 5 years, was of the malignant neutropenia type. The disease is a familial form of malignant neutropenia with atypical granulations of the leukocytes, transmitted by the father and which will probably be transmitted by some of the children.

Obstetricia y Ginec. Lat.-Americanas, Buenos Aires

2:1-88 (Jan) 1944 Partial Index

- *Viruslike Infections of Female Genital Organs W E Coutts, I Brieva J Lerner and A Sid—p 9
Dynamic Indications of Cesarean Section R Dubrovsky—p 22
Drummers Used in X-Ray Measurements of Female Bone Pelvis J Leon and J A Salaber—p 55

Viruslike Infections of Female Genital Organs—Coutts and his collaborators found that viruses of herpes, nasobuccopharyngeal infections (Broadhurst), inclusion conjunctivitis (Halberstaedter-Thyngenson) and lymphogranuloma venereum are frequent causal agents of viralid vulvitis, vaginitis and cervicitis. Gynecologic viruslike infections do not react to sulfonamide therapy. A diagnosis can be made from the presence of cytoplasmic, nuclear and tissue inclusions which can be identified in stained vaginal smears or by a biopsy. The differential diagnosis of genital virus infection by the virus of either lymphogranuloma venereum or follicular inclusion conjunctivitis can be established by the results of a skin test in which specific antigens are used. An associated infection may be present.

Revista de la Policlínica Caracas, Caracas

12:323 384 (Nov.-Dec) 1943 Partial Index

- Leukemia and Pregnancy A van der Sar and P H Hartz—p 325
*Arterial Fat Embolism Experiments H Cedeno Perez—p 340

Arterial Fat Embolism—Cedeno Perez injected sterile olive oil into the renal artery in one group of dogs and into the carotid artery in another group. The dose of oil injected into the renal artery varied from 1 to 2 cc and of 1 to 10 cc into the carotid artery. The animals did not manifest general disorders or paralysis. Spontaneous death did not occur during the experiment. The animals were killed at periods varying from ten minutes to fifty days after the injection. The kidneys and lungs of the animals of the first group and the brain and lungs of the second group did not show microscopic lesions of importance. The injected oil passed rapidly (in fifteen minutes) from the renal capillaries into the pulmonary capillaries and still more rapidly (in ten minutes) from the cerebral capillaries into the pulmonary capillaries. The fat accumulated in the

capillaries of the lung was slowly absorbed. The author concludes that arterial fat embolism is not necessarily fatal. It does not produce important lesions. The type of clinical and microscopic reaction produced by fat embolism does not depend on the velocity of the injection of the oil.

Revista Médica de Rosario, Rosario

33:1097-1174 (Dec) 1943 Partial Index

Value of Takata Reaction and of Its Modifications A. B. Arroyo —p. 1097

*Hematochromatosis Case J. N. Marín and J. F. Ganem —p. 1126

Hematochromatosis.—Marín and Ganem report the case of a man 33 years of age, in whom an attack of an acute gastrointestinal disorder was followed by progressive hepatomegaly. A biopsy of the liver taken in the course of an exploratory laparotomy showed that the organ contained a large amount of iron pigment. Diabetes refractory to insulin therapy, asthenia, hypotension, sexual frigidity and progressive emaciation followed. Hematochromatosis appears to be a disorder of iron metabolism in the course of which the cells and tissues of certain organs, especially of the liver, pancreas and endocrine glands, are transformed into depots of iron containing pigment. Destruction of the pigmented tissues and cells and formation of scar tissue follows. Heredity and a familial predisposition seem to play a role.

Semana Médica, Buenos Aires

51:417-468 (March 2) 1944 Partial Index

*Typhoid Intestinal Perforation in Children A. Invaldi —p. 417

Postabortion Suppurated Pelviculitis Therapy by Drainage Posterior Colpotomy and Azosulfamide Litages L. Frisce —p. 444

Typhoid Intestinal Perforation.—Invaldi reports 298 cases of typhoid in children. Intestinal perforation occurred in 10 children whose disease was of the grave type. The patients had good hygienic care and a diet of milk and decoctions. Perforation occurred at the level of the ileum during the third week of the disease. The symptoms were sudden pain in the right iliac fossa, which became diffuse over the abdomen within a few hours, abdominal tenderness, vomiting, obliteration of liver dullness, and tenderness in the Douglas pouch on rectal palpation. Increased virulence of *Eberthella typhosa* in certain epidemics is responsible for the occurrence of intestinal perforation. The therapy consists of earliest intervention with suture of the perforations. A single perforation was encountered in 8 patients, three perforations in 1 and four in another. Two patients operated on within six hours of perforation recovered, whereas 6 patients operated on after the six hour lapse died.

51:469-520 (March 9) 1944 Partial Index

Cerebral Hemorrhage Physiopathologic and Therapeutic Study J. Brubosa —p. 469

Demerol in Parkinsonism L. Curri —p. 501

*Blood Groups in Acute Anterior Poliomyelitis C. Sujoy and H. Allemand —p. 476

Blood Groups in Acute Anterior Poliomyelitis.—Sujoy and Allemand made determinations of blood groups in 150 children with acute anterior poliomyelitis in the course of an epidemic. The majority of the patients were under 5 years of age. Sixty-five children (43 per cent) belonged to the O group, 59 (39 per cent) to the A group, 21 (14 per cent) to the B group and 5 (3 per cent) to the AB group. The author concludes that there is no relationship between a given blood group and immunity to acute anterior poliomyelitis. The theory that immunity to poliomyelitis is greater in children of the B group than in those of any other group is not justified.

Klinische Wochenschrift, Berlin

21:765-784 (Aug. 29) 1942

Shock and Collapse H. Schwiegh —p. 765

*Treatment of Fat Embolism with Oxygen Inhalation H. von Brücke —p. 771

*Onset and Course of Weil-Felix Reaction During First Ten Weeks of Typhus F. Schutz and T. Messerschmidt —p. 772

*Types of Diphtheria Bacilli as Separate Pathogenic and Epidemiologic Entities H. Grossmann —p. 774

Dissociated Icterus J. Tako —p. 776

Treatment of Fat Embolism with Oxygen Inhalation.—According to von Brücke, passage of fat into the blood stream is a frequent accompaniment of fractures in adults. Blood and urine of patients with fractures contain fat droplets even in the

absence of clinical signs. If large quantities of fat enter the blood stream, pulmonary capillaries may become blocked with fat droplets, with resulting pulmonary fat embolism. There is also a cerebral form of fat embolism. Fat embolism plays a part in the pathogenesis of traumatic shock, for in fatal cases of shock after bone fractures considerable quantities of fat are often found in the pulmonary vessels. The therapy of fat embolism is still unsatisfactory. The efficacy of oxygen inhalation in the treatment of pneumonias induced the author to try this measure in the treatment of a young man with pulmonary fat embolism following fracture of the femur. Various circulatory remedies and a blood transfusion were without effect and the patient's life seemed in danger. After a few minutes of oxygen respiration the color improved, the breathing became deeper and more quiet and the pulse improved. When the oxygen was withdrawn, the condition became worse again and oxygen respiration was resumed. At the end of twenty-four hours the patient's condition was greatly improved. During the following two days the patient breathed oxygen interruptedly.

Weil-Felix Reaction in Typhus.—Schutz and Messerschmidt point out that the Weil-Felix reaction is of great value in the diagnosis of typhus, particularly in its differentiation from typhoid. It seemed of interest to investigate to what titer limit the typhus serum would agglutinate proteus X 19 bacteria, in which stage of the disease the agglutination titer would be highest and in what manner it would subside. Blood specimens from typhus patients were examined in two different laboratories. In some instances as many as 20 specimens were examined, but the average was 4 or 5 tests in 1 case. The examinations were made between the first and the forty-second day of the disease. Agglutination was considered positive with a marginal value of 1:200 or 1:400. When 1:200 was accepted as the limit, the reaction was positive on the third day in 30 per cent of the cases, on the fourth day in 48 per cent, on the fifth day in 59 per cent, on the seventh day in 65 per cent, during the second week in 91 per cent and during the third week in 99 per cent of the cases. The results are similar when a marginal value of 1:400 is taken as the basis, except that the incidence of positivity is slightly lower. The maximum height of the titer differs in individual patients. Occasionally values of 1:100,000 were reached. The decrease of the titer may be irregular. No satisfactory explanation has been found for these fluctuations. Intercurrent disorders such as colds sometimes caused a temporary renewed increase in the titer. However if an infection such as a thrombophlebitis greatly depleted the defense powers of the organism, the titer of the Weil-Felix reaction decreased likewise. The reaction became rarely negative again during ten weeks of observation following the onset of typhus.

Types of Diphtheria Bacilli as Separate Pathogenic and Epidemiologic Groups.—Grossmann says that the designation of the types of the diphtheria bacilli as "gravis," "intermedius" and "mitis" was based originally on clinical observations. Later investigators found that the gravis and mitis types do not necessarily correspond to severe and mild courses of the disease and suggested that these type designations be discontinued in favor of the classification types I, II and III. This suggestion was not widely accepted. The author feels that the question cannot be regarded as settled, since the separate pathogenic position of the gravis, intermedius and mitis types may still be relatively correct. The epidemiologic distinctness of the types has also been challenged. Grossmann presents investigations on these problems which he carried out during the years between 1938 and 1940 in 425 cases of diphtheria. He found that the gravis type of the diphtheria bacillus was the one most frequently present in mild cases but in the severe and in the fatal cases it was also found more frequently than the other two. In separating the clinical pictures and also considering the type of bacillus it was found that the gravis type was responsible for the majority of severe cases of diphtheria, the type mitis for most of the mild cases and the type intermedius for the majority of the moderately severe cases. Thus the pathogenic distinctness of the types was relatively maintained.

Book Notices

Oral Histology and Embryology. Edited by Balint Orban. Cloth. Price, \$6.50. Pp. 342, with 262 illustrations. St. Louis: C. V. Mosby Company, 1944.

This is unique among textbooks in that it is written by a number of teachers and investigators in oral histology who collaborated not only by preparing the first drafts for their individual chapter assignments but also by discussing, editing and revising every other chapter. It may therefore be considered to be a careful cross section of the present day views on the various problems in the active field of oral histology and embryology in which different interpretations naturally have arisen in proportion to the rapidity of the advance of this field of knowledge.

The book opens with a discussion of the development of the face and oral cavity, which is supplemented by a number of illustrations including an excellent two page colored plate. Chapter II is concerned with tooth development and lays greater stress on developmental physiology than is usually offered in histologic presentations. The morphologic stages are analyzed in terms of the physiologic processes which they represent and are vitalized by a discussion of the developmental aberrations to which they may give rise.

Chapter III deals with the complex problems of the microscopic structure and development of the enamel. It is the longest chapter and probably the one that gave the collaborators and the editor the greatest challenge. It includes a detailed consideration of the life cycle of the ameloblast, a summary of the latest chemical findings on the calcification of the enamel and a discussion of the submicroscopic structure as revealed by studies in polarized light. This chapter is richly illustrated (one illustration for each page). The chapter on the pulp is excellent and is of special current interest in view of the delicate reactivity of the pulp to changes in atmospheric pressure during flying.

Other chapters cover the fields of dentin, cementum, periodontal membrane, maxilla and mandible, gingival sulcus and epithelial attachment, eruption, shedding of deciduous teeth and oral mucous membrane.

Chapters of special interest and not usually included in histology textbooks deal with the temporomandibular joint, maxillary sinus and glands of the oral cavity. The last chapter deals with histologic technic and includes special methods for the study of the organic structure of the enamel.

A number of the illustrations are of full page size. Some are diagrammatic and help the interpretation of the photomicrographs. In addition there are nine tables which help to summarize and classify some of the facts presented.

The text shows evidence of unremitting care and attention. The technical composition of the book is good. Reading and reference are facilitated by heavy type headings and side headings. Each chapter concludes with a special section on the clinical application of basic histologic data and a selected list of references.

This textbook will be of help not only to the dental student and practitioner but also to the medical student and the physician who is interested in understanding the biologic basis for current theories and various clinical procedures.

Medical Care of the Discharged Hospital Patient. By Frode Jensen, M.D., Instructor in Medicine, Syracuse University College of Medicine, Syracuse, New York; H. G. Weiskotten, M.D., Deau and Professor of Pathology, Syracuse University College of Medicine, and Margaret A. Thomas, M.A. Cloth. Price, \$1. Pp. 94. New York: Commonwealth Fund; London: Oxford University Press, 1944.

This publication reports a study dealing with the problem of providing improved medical care for hospitalized chronically ill patients, and a method of early discharge of ward patients at the University Hospital, Syracuse, N. Y., with follow-up care in the home by a staff physician is described. The need for continuity of medical supervision of patients discharged was shown by the fact that 84.1 per cent of all patients admitted to the medical wards during the period of the study (July 1, 1940 to Feb. 1, 1942) were suffering from chronic disease, and about one third of these had degenerative cardiovascular disease.

Only 59.3 per cent of patients discharged to their private physicians reported to them unless some special step was taken.

Likewise only 23.2 per cent discharged to the outpatient department reported without follow-up. Excessively long periods of hospital care were called for by those patients discharged without referral to private physicians or the clinic.

To study and remedy this situation one of the authors (F. J.) was appointed as extramural resident. Appropriate follow-up in the home was provided for those referred out for further care. For those who were merely discharged home visits were made, and medical treatment as indicated was given in the home by the extramural resident. The percentage of patients who then consulted their private physicians was raised to 78.8, and those returning to the clinic increased to 84.2.

The Home Care Group offered unusual opportunities for coordinating good medical care with the needs of individual patients. Of 165 patients so treated, it is reported that 7,268 days of hospital care at a cost of \$29,072 were saved, independent of the value of the service to the patient. This sum, saved by the services of the Extramural Resident, was three times the total cost of the experiment. What may be of even greater significance is the fact that, by extending the hospital service to include care in the home for but 165 ward patients, beds were made available to serve a possible additional 302 patients with average hospital stays of twenty-four days each.

It is concluded by the authors that the provision of home care for discharged medically needy patients is one further step toward a more economical and beneficial use of the hospital in the care of the indigent.

This short presentation of a study in a field badly in need of suggestions offers interesting and challenging material for further consideration.

Childbirth Without Fear: The Principles and Practice of Natural Childbirth. By Grantly Dick Read, M.A., M.D. Cloth. Price, \$2.75. Pp. 259. New York & London: Harper & Brothers, 1944.

This book was published in England under the title "Revelation of Childbirth." The thesis that Read expounds is that human reproduction is a normal, natural, biologic process. Pregnancy and labor should be conducted in this light. Pain associated with labor is the result of fear engendered by generations of ignorance, misconception and false teaching. The fear of parturition has become the great disturber of the neuromuscular mechanism of labor.

The author removes the pain associated with labor by the elimination of fear. Education during the antepartum period is directed toward impressing the pregnant woman to regard labor as a normal, biologic process devoid of all pain and discomfort. Anxiety is avoided by a careful explanation of all the facts which enter into normal pregnancy and labor. As an adjuvant to this peace of mind, she is taught to relax by systematic exercises introduced at the fourth or fifth month and continued to term.

Labor is conducted as naturally as possible. During the second stage the patient has access to inhalation anesthesia but, if her education has been complete, she will not resort to it. Rubbing of the back and pressure on the sacrum will provide some relief at this period. The relative anesthesia of the perineum which makes it possible for the author to repair superficial tears without anesthesia is due to the trauma to which the perineum has been subjected rather than to the exalted state of the patient at the birth of the baby, as the author suggests. Abnormal or surgical deliveries require anesthesia because real physical pain is induced by laceration and excessive stretching of the birth canal.

There is an excellent lesson in this book for obstetricians and students of reproduction. It is thought provoking as well as interesting to read. Emotional influences do play a profound role in the physiology of reproduction. Pregnancy and labor have come to be regarded as pathologic states. Few women in our large maternities deliver naturally. However, pain relief is here to stay even though the ideal analgesic agent has not been found. In spite of the conversion of a physiologic function into a pathologic state, pregnancy and labor have become increasingly more safe for our mothers and our babies.

The author dedicates this monograph to the late Joseph B. De Lee, a fellow crusader in the interests of safer motherhood, for his kindly interest in his work and his personal friendliness and appreciation.

Female Endocrinology Including Sections on the Male. By Jacob Hoffman, A.B., M.D., Demonstrator in Gynecology, Jefferson Medical College, Philadelphia. Cloth. Price, \$10. Pp. 788, with 181 illustrations. Philadelphia & London: W. B. Saunders Company, 1944.

The author set out to give his readers a concise, simple and clear exposition of endocrinology, avoiding the purely speculative and ill founded concepts and emphasizing the sounder views. In this he has succeeded admirably. The book concerns itself not only with the clinical aspects of gonadal and reproductive endocrinology but also with a discussion of the fundamentals of glandular physiology.

In the clinical material, particularly, emphasis is placed on disturbances of functional origin because those make up by far the largest part of all endocrine disorders. Throughout the discussions there is abundant evidence of the author's conservative and critical attitude in the management of endocrine disorders. Likewise, whereas he recounts the vast amount of data derived from animal experimentation, he recognizes the wide gap which exists between laboratory animals and man and therefore he uses great caution in drawing inferences from laboratory research. Laboratory tests and diagnostic aid of other kinds are given in detail for both normal and abnormal patients, and their limitations are pointed out.

The book includes an exhaustive and critical review of the literature on endocrinology. An extensive bibliography is added to each chapter, and at the end of the book is an invaluable bibliographic index which occupies almost thirty pages of double columns. In this index is included every article which is of any importance in the field of endocrinology. For his critical analysis of the vast literature which has accumulated in the last few years, the author deserves special praise because this is a long, time consuming and difficult task. For this job the author is eminently fitted, because he has made many valuable contributions to the field of endocrinology.

The book is written in a style easy to read. The illustrations are abundant and highly instructive. The author is to be highly congratulated on having written one of the best and most useful textbooks on the subject of endocrinology in any language. Likewise the publishers deserve great credit for having done their part magnificently because the paper is excellent, the type is clear and the illustrations have been beautifully reproduced. All in all, this book, which is a treasure house of information, should be in the library of every gynecologist, urologist, laboratory technician and general practitioner.

Supplement to The Extra Pharmacopœia, Martindale, Twenty-Second Edition, Volume I. Published by direction of the Council of the Pharmaceutical Society of Great Britain. Paper. Price, 2s. Pp. 48. London: Pharmaceutical Press, 1943.

The Extra Pharmacopœia, which is published under the supervision of the Council of the Pharmaceutical Society of Great Britain, is widely known. The supplement to volume I, twenty-second edition, contains a summary of changes made in the addenda to the British Pharmacopœia (1932), additions and deletions to the British Pharmaceutical Codex (1934), preparations of the National War Formulary (1943), articles added to and deleted from U. S. P. XII and N. F. VII, some orders in England affecting supplies of drugs, a list with brief description of some new proprietary names not included in volume I, and a few names approved by the General Medical Council for substances of British manufacture which have hitherto been known by other names.

The Story of the First Fifty Years of The Mount Sinai Hospital, 1852-1902. Cloth. Pp. 92, with illustrations. New York, 1944.

This book describes and documents in chronologic sequence the story of the formative years of the Mount Sinai Hospital, New York City, from 1852 to 1870, and the subsequent growth and development from 1870 to 1902. A third section is now in preparation and will be published in the *Journal of the Mount Sinai Hospital* as the material becomes available. It is hoped that these reports will also be supplied in book form to complete the historical record of a period of ninety-two years of distinguished hospital service. The book is an interesting narrative of hospital events so written as to reflect the course of medicine in the latter half of the nineteenth century. It introduces many of the prominent physicians of the early period and describes

their work and influence in shaping the medical traditions of Mount Sinai Hospital. Included are many items of special interest in relation to the early history of New York City, its growth and development, the hospital in the Civil War period, character of nursing service, public attitude toward postmortem examination and surgery as practiced in the transitional period of anesthesia and surgical antisepsis. Physicians and hospital personnel will find that this volume yields interesting and profitable reading.

Elementy mysli: Sbornik Izbrannykh statey. [By] I. M. Sechenov. [Elements of Thought Processes.] Paper. Price, 9 rubles, 50 kopecks. Pp. 222. Moskva & Leningrad: Izdatelstvo Akademii Nauk SSSR, 1943.

Sechenov, founder of Russian physiology, was first to attempt investigation of the sphere of consciousness by physiologic methods. He postulated that the thinking process is of reflex nature and that psychic activity of man is therefore susceptible to objective study. He believed that the external world plays an important role in the existence of the living organism. The content of our psychic life is the reflection of the material world in special types of apperceptions, images and concepts. Nearness, distance and height of objects, direction and rapidity of movements are products of our muscle sense. This sense, manifesting itself in periodic movements, becomes the fractional analyzer of space and time. Our numerical concepts stem from the same source. The volume at hand presents a collection of essays by the great physiologist dealing with the development of his central thesis, which is the reflex nature of the process of thinking. The chapters are designated as (1) who is to investigate psychology and how? (2) impressions and reality, (3) elements of the thinking process, (4) objective thought and reality and (5) objective thinking regarded from a physiologic point of view. The volume is one of the scientific-popular series published by the Russian Academy of Sciences. The volume should prove of particular interest to neurophysiologists and to psychologists. It is to be regretted that there are no summaries in English or French.

Introduction to Microorganisms. By LaVerne Ruth Thompson, R.N., M.A., M.S. in Public Health, Instructor of Microbiology, Division of Nursing Education, Teachers College, Columbia University, New York. Cloth. Price, \$2.75. Pp. 445, with 54 illustrations. Philadelphia & London: W. B. Saunders Company, 1944.

This book is truly entitled "an introduction" and as such can be read by any one with a good high school education. The volume could serve as a supplement to advanced high school or beginning college courses in biology; it may be helpful in introducing the subject to nurses; it will be useful also to any intelligent reader who is anxious to develop or extend an elementary knowledge of biology. The method of presentation employed is rather unusual but its principal feature is the care which has been given to retain accuracy against a background of readily understandable scientific language.

Social and Psychological Factors Affecting Fertility. II: Variations in the Size of Completed Families of 6,551 Native-White Couples in Indianapolis. By Clyde V. Kiser and P. K. Whelpton. Reprinted from *The Milbank Memorial Fund Quarterly*, Vol. XXII, No. 1, January 1944. Paper. Pp. 61-94. New York: Milbank Memorial Fund, 1944.

This pamphlet contains an analysis based on household surveys conducted in Indianapolis of 6,551 native white couples of virtually completed fertility. It is concerned with the distribution and number of live births as related to possible associated factors. The percentage of childlessness, the part played by religion, the relation of family size to rental value and educational attainment and other factors were included. The subject is related to numerous important social and economic problems.

Estudios de histofisiología e histofisiopatología tiroidea. Por Wachtel-ton Buño, profesor titular de histología y embriología de la Facultad de medicina, Montevideo. Paper. Pp. 200, with 96 illustrations. Buenos Aires: Editor "El Ateneo," 1943.

This book represents a review on the correlation between histologic and histopathologic pictures of the thyroid gland and its function. The author has made no attempt to present new material or original concepts. The main value of the book lies on the presentation of a fairly well selected literature on the anatomic changes of the thyroid gland in pathologic conditions. The reproduction of the histologic slides is, as a rule, excellent.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

INTRAVENOUS INJECTION OF FLUIDS AND THROMBOPHLEBITIS

To the Editor—Has there been any evidence to indicate that the intravenous administration of fluids into the leg veins may be a factor in the production of thrombophlebitis and embolism? Has there been any evidence to indicate that the posture of a patient on the operating table, particularly the Trendelenburg position, might influence the production of thrombophlebitis and embolism? If dicumarol is to be used as a prophylactic measure to reduce the possibility of embolism and thrombophlebitis, has anyone outlined a dosage scale to be used in what relation to the date of operation and in what cases should it be used?

Major, M. C. Washington, D. C.

ANSWER—

[This question has been referred to two qualified consultants, whose respective replies follow.—Ed.]

1 Intravenous administration of fluids, provided they are isotonic, hardly ever produces thrombosis in the veins of the legs, it is obvious however, that with many patients harboring small subclinical thrombi in the superficial and perforating veins of the calves a preexisting thrombosis can be stirred up and extended. For this reason, especially in older persons, the use of the veins of the dorsum of the hand or the elbow is preferable, it is known, of course, that thrombosis may occur even in the upper extremities.

Certain postures on the operating table definitely add to the hazards of thrombosis, one of these is the lithotomy position, producing acute angulation of the popliteal vein. The Trendelenburg position accelerates blood flow from the lower extremities and is an excellent method for the prevention of postoperative thrombosis. It certainly does not contribute to stasis and the formation of thrombi.

The use of dicumarol for prophylaxis against postoperative thrombosis and embolism has been reported several times. Butsch and Stewart (*Arch Surg* 45:551 [Oct.] 1942) administered the drug to 23 men one to two days before hemorrhaphy. Excessive bleeding was not encountered and healing was not delayed. Barker, Allen and Waugh (*Proc Staff Meet Mayo Clin* 18:102 [April 7] 1943) used it in 497 surgical cases in which thrombosis seemed likely. In 4 cases thrombosis or embolism developed and in 3 of these it was difficult to secure a satisfactory increase in prothrombin time. Hemorrhage was a complication in 47 of these cases, but it was minor in 29 and moderate to severe in only 18. It was fatal in 1 case.

There are several difficulties encountered in the routine preoperative and postoperative use of dicumarol. Obviously one would select only those patients with types of operations which are known to carry a higher than normal incidence of postoperative thrombosis and embolism. Some of these factors are age over 40, obesity, history of previous thrombosis, operations in the pelvis, lower abdomen or thigh and operations requiring prolonged immobility, just to mention some of the factors. Even in this group many simple measures, such as adequate fluid intake, correction of the anemia, postoperative Trendelenburg position and early mobilization are helpful. Sodium tetrathionate (*Surgery* 14:661 [Nov.] 1943) and neostigmine (*Arch Surg* 48:105 [Feb.] 1944) have been suggested as preventive measures, but their value on a large controlled material is not yet confirmed.

The crux of this important problem is this. If patients could be picked out preoperatively who show a tendency to thrombosis, their intensive treatment with anticoagulants might be logical. Such a test has been suggested (*Surg, Gynec & Obst* 77:31 [July] 1943). Patients showing a poor response to heparin may be given heparin for two days with simultaneous doses of dicumarol. The customary dose of dicumarol is 300 mg the first, 200 mg the second and 100 mg the third day. Unless daily determinations of prothrombin time are available, the administration of the drug is dangerous. The prothrombin time must be kept between 50 and 30 per cent below normal. Experience with operations during the influence of heparin or dicumarol indicate that heparin does not affect capillary contractility and the field is not as vascular as it is when dicumarol is in effect. Dicumarol is not on the market and has not yet been accepted by the Council on Pharmacy and Chemistry.

2 The administration of fluids into the leg veins occasionally is the cause of superficial chemical thrombophlebitis. Since such

a superficial thrombophlebitis practically never metastasizes, it is rarely the cause of an embolism.

The position of the patient on the operating table, particularly the Trendelenburg position, does not influence the production of thrombophlebitis and embolism.

Dicumarol is too dangerous a drug to be given routinely in all postoperative cases. Dicumarol is recommended postoperatively at the first indication of any thrombophlebitic emergency, preferably combined with heparin because it will take dicumarol at least two days to exert an anticoagulative effect. Dicumarol alone is recommended as a routine prophylaxis for patients who give a history of having had thrombophlebitic emergencies following previous operations or childbirth. The initial dose is given on the third day postoperatively unless the surgeon feels that there is still danger of hemorrhage. The initial dose is 300 mg for a patient of over 150 pounds (68 Kg.) and 200 mg for a patient under 150 pounds, followed by a daily maintenance dose of 100 mg. A daily morning prothrombin time is essential and the daily afternoon dose of dicumarol is omitted when the prothrombin time has reached 60 to 69 per cent. Each time the morning prothrombin time climbs back to above 70 per cent, another 100 mg of dicumarol is administered. The patient is allowed up according to surgical indications, but only if the prothrombin time is below 75 per cent. When the patient is up the dicumarol is discontinued, there being another four to five days of dicumarol protection before effects wear off.

MENSTRUATION AND PREGNANCY DURING NURSING PERIOD

To the Editor—Do women menstruate while nursing? If so, about what percentage? Is it possible for women who do not menstruate, while nursing, to become pregnant?

M. D. West Virginia

ANSWER—Menstruation does occur in many women who nurse their babies. Likewise, ovulation can take place in nursing mothers who do not menstruate, as evidenced by the fact that pregnancy not infrequently occurs during the period of lactation before the return of the menses. Many lay persons and some physicians still believe that breast nursing is a barrier to conception, but many women have learned otherwise from personal experience.

According to De Lee and Greenhill (*Principles and Practice of Obstetrics*, ed 8, Philadelphia, W. B. Saunders Company, 1943, p. 330) the return of menstruation following childbirth varies in different women. In those who do not nurse their babies the menses usually return in six weeks, while in those who nurse their children the first period usually appears after the third or fourth month. In some women, however, the menses do not return until the baby is weaned.

Lass, Smelser and Kurzrock (*Endocrinology* 23:39 [July] 1938) studied 47 normal women during the postpartum period. Each woman was nursing regularly but still having regular periods of catamenia. Endometrial biopsies were taken at four week intervals. From these 47 women 194 biopsies were obtained. It was found that the time of appearance of the first ovulatory cycle was irregular. Of the 194 cycles 106, or 55 per cent, were anovulatory but the rest (45 per cent) were ovulatory, and therefore pregnancy was possible.

Rutherford and Mezer (*THE JOURNAL*, May 9, 1942, p. 124) studied endometrial biopsies from lactating and nonlactating puerperal women. In the former there was definite evidence of ovulation five weeks post partum, and the authors believe that ovulation occurs, on the average, six weeks after delivery. In lactating patients menstruation may be delayed for varying periods, but from the eighth week on the ovarian cycle may escape from pituitary inhibition and render a patient susceptible to impregnation. Therefore the period of lactation is not necessarily a "safe period."

CARCINOMA OF THE VULVA

To the Editor—I have recently removed, with rather wide excision, a tumor which proved to be an adenocarcinoma of the vulva. The pathologist states that all of the tumor was included in the tissue submitted for examination and that it had apparently developed from one of the sweat glands. This small tumor, about 1 cm in diameter, had been present for about six months. It was apparently well circumscribed and was not penetrative in its growth. What further procedures are indicated?

Charles W. Davis, M.D., Humboldt, Tenn.

ANSWER—Carcinoma of the vulva metastasizes to the inguinal glands. The fact that the tumor was thought to be entirely removed does not give assurance that some of the cells have not extended along the line of lymphatic drainage. This patient should therefore receive high voltage x-ray therapy over each inguinal area or have the inguinal glands removed by surgical excision.

ENDOCRINE DISTURBANCES AND ALLERGY

To the Editor—What is the influence of allergy on the Friedman modification of the Aschheim-Zondek test? A white woman aged 40 has a history of several years' duration which strongly suggests allergy. In the remote past she had sinusitis, treated by removal of some intranasal material, possibly polyps. About four years ago she began to have abdominal cramps and diarrhea, and occasional rectal bleeding. Examination at that time included a series of gastrointestinal x-ray examinations, urinalysis, complete blood count, determination of basal metabolic rate, sigmoidoscopy and study of the stool. All tests yielded normal observations. At this time no medication seemed to help the patient and it was finally decided to perform an exploratory laparotomy. This revealed no evidence of disease and no evidence of allergy. The appendix was removed for prophylactic reasons. Following the operation the patient did well for a long time, but eventually the attacks of cramps recurred. This time, however, there was rarely diarrhea accompanying the attacks. Recently the patient reported a new symptom, intermenstrual bleeding, which occurs on slight trauma, such as sitting down at stool. The blood is small in amount but bright red and unlike that seen in menstrual bleeding. The clinical impression was either endocrine bleeding or uterine neoplasm. It was decided to do a curettage for diagnostic purposes to eliminate the possibility of cancer. In such cases I routinely have a Friedman modification of the Aschheim-Zondek test made in the attempt to rule out the possible presence of pregnancy. On attempting this test on this patient 3 rabbits died on two occasions after the injection of the patient's urine. The laboratory reported to me that the rabbits died from anaphylactic shock. I have now begun a thorough allergy work up. I wish to obtain information in regard to the following points: Has uterine bleeding, especially intermenstrual bleeding, been recorded as the result of allergy? Have similar results been obtained before on attempting Aschheim-Zondek tests on allergic patients? Has allergy ever been found to be due to any of the endocrine glands, e. g. ovary or corpus luteum?

M. D., New York

ANSWER—The relationship between the many possible endocrine disturbances to the symptoms of allergy is still one of the unexplored fields. Patients whose asthma was due to specifically known allergens have been completely relieved without any treatment during the period of gestation with recurrence of symptoms during the puerperium or shortly thereafter. Conversely, patients have been seen whose asthma was definitely aggravated during pregnancy. One patient, observed recently, had not required treatment for pollen asthma during the past three years. An arrested case of asthma due to molds and pollens. Shortly after the beginning of her pregnancy she developed severe asthma, which remained throughout her pregnancy. This appeared to be due to the molds and later to three pollens. During the ninth month of her pregnancy, despite the presence of molds and pollens in greater abundance than had been the case the previous few months, the symptoms of asthma subsided quite suddenly and did not recur after the puerperium. The patient had no treatment during all this period of observation. The frequency with which all allergic symptoms are aggravated during the menstrual period or immediately after is well known. However, nothing is known that would conform to the case mentioned in this inquiry. To answer the questions asked: 1. Uterine bleeding, especially intermenstrual bleeding, has not been reported as the result of allergy. 2. No results of Aschheim-Zondek tests on allergic patients such as reported in this query are mentioned in the literature. There would seem to be no reason for reporting the deaths of the rabbits as "anaphylactic deaths" after a first injection of a suspected antigen. It is difficult at times to state definitely that death in a rabbit is due to anaphylaxis. 3. While it is reasonable to assume that disturbances in endocrine function may influence all symptoms, it is not necessarily true that this is due to sensitivity to any of the endocrine glands involved or to their products. "Autosensitization" to injured or diseased tissues in the animal is still in the hypothetical research stage. Sensitization of the animal, whether human or otherwise, to its own normal organs or secretions of organs, is inconceivable since it is incompatible with life.

NEEDLE EMBEDDED IN SACRAL COLUMN

To the Editor—While the Hingson-Edwards method was being used the needle broke accidentally, and x-ray examination shows that it is embedded in the sacral column. The chief concern now is whether the material in the needle may cause electrolytic action which would set up a reaction to the bone structure, the needle referred to is made of number 8 stainless steel with about 18 per cent chrome and 10 per cent nickel. There is also the possibility that the needle may work itself through the bone structure into the tissues of the nervous system.

M. D., New Jersey

ANSWER—It should be determined by the roentgenologists whether the needle is in the hollow canal of the sacrum or whether it is posterior or anterior to the sacrum. It is the writer's opinion that this needle should be removed as soon as possible. It may travel, but especially it may become associated with an infection and abscess formation, and this may become

multiple. This same accident has occurred elsewhere, and once a needle was left in place for eight days a small abscess developed. In another case a needle was removed within two days and no infection resulted.

LOCAL ANESTHETIC INJECTIONS FOR SPRAINS

To the Editor—Since reading Lieutenant Commander McMaster's article on ankle sprain in *The Journal*, July 3, 1943, I have been trying this method on a few patients. I have also used it in cases of sprain of the lateral ligaments of the knee joint. I have been using 2 per cent procaine with epinephrine, although the article specifies this same strength without epinephrine. I find that there is immediate relief, of course, but when the effect of the local anesthetic begins to wear off in a short while the pain is frequently worse than ever, requiring sedation in most cases. Would the addition of the solution of epinephrine hydrochloride (1:50,000) make this occur? If so, why? Is there any more danger in using the procaine without epinephrine than with it?

M. D., Ontario

ANSWER—In the original article (*Press med* 40:280 [Feb 20] 1932) Leriche used procaine 2 per cent for injection of sprained ligaments about the ankle. No mention is made of the use of epinephrine. As this was originally Leriche's method and it does relieve the pain of a sprained ankle, sometimes permanently, there is no reason for the addition of epinephrine. There is also no reason why the use of epinephrine should cause the pain to recur unless the return of blood to the ischemic area produced by epinephrine may cause painful pressure. The action of epinephrine in local anesthesia is to cut down the blood flow in the area and thus keep the anesthetic localized and retained longer, possibly prolonging its action. The danger of the general action of procaine might thus be lessened. However, in using Leriche's method of ankle injection it would be well to follow the letter of his technique until some changes should be proved better. The same rule applies for every one who uses a given technique devised by an expert and is especially true in the case of an occasional user, as in Orr's method of treating osteomyelitis or compound fracture, the Carrel-Dakin treatment of wounds, the Lane technique or the Hobart operation for recurrent dislocation of the shoulder.

HIGH ALTITUDE FLYING AND IMPOTENCE

To the Editor—Will you kindly advise me whether frequent high altitude flying bears any causal relation to male impotence? M. D., New York

ANSWER—There is no reason to believe that high altitude flying per se has any causal relation to male impotence. The use of oxygen nullifies the physical effects of altitude up to 34,000 feet and to a decreasing degree above that level. Except for combat flying, planes rarely go above that altitude and usually not nearly that high. Flying for long periods repeatedly at moderate altitudes of 12,000 to 18,000 feet without oxygen results in the development of chronic fatigue and a gradual lowering of the ceiling of the individual. This chronic fatigue might be a factor in the development of impotence. It is recognized that all pilots should use oxygen above 10,000 feet and some authorities advise its use for prolonged flights above 8,000 feet. With this precaution there should be no deleterious effects from the altitude itself. Regardless of altitude, however, flying long hours without adequate rest periods, especially flying under conditions of stress, often results in the development of a condition known as acroneuriosis. This condition might lead to temporary impotence.

APPENDIX IN LEFT LOWER QUADRANT OF ABDOMEN

To the Editor—In what percentage of cases is the appendix found in the left lower quadrant of the abdomen?

Lloyd J. Netto, M. D., West Palm Beach, Fla.

ANSWER—The percentage of cases in which the appendix is found in the left lower quadrant of the abdomen is not known. An estimate would be that it is between one tenth and one hundredth of 1 per cent. It may be due to an unusually long mesentery, to arrested fetal development or to transposition of the viscera.

NATURAL SULFUR WATER AND PEPTIC ULCER

To the Editor—Is natural sulfur water as drunk at various springs contraindicated for persons who have peptic ulcer?

F. H. Hodges, M. D., Pikeville, Ky.

ANSWER—Evidence to support the supposition that sulfur water from natural springs is contraindicated in persons who have peptic ulcer has not been found. The possibility of formation of sulfuric acid is too remote to be of any significance.

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NATIONAL PROGRAM FOR PHYSICAL FITNESS

REVEALED AND DEVELOPED ON THE BASIS OF
13,000,000 PHYSICAL EXAMINATIONS OF
SELECTIVE SERVICE REGISTRANTS

COLONEL LEONARD G. ROWNTREE, MED. RES.
Chief, Medical Division, National Headquarters, Selective Service
System; Vice Chairman, National Committee on Physical Fitness,
Federal Security Agency
WASHINGTON, D. C.

Medicine has played an indispensable role in the creation of our armed forces. For nearly four years, doctors have been examining and passing judgment on innumerable thousands of registrants. By January of this year more than 13,000,000 examinations were completed. This unprecedented mass of medical data is now being subjected to statistical analyses. Both in quality (medical procedure and judgment) and in quantity (numbers involved) this material far surpasses that of any other survey ever made in the history of our nation.

While the primary objective of these examinations was for the selection or rejection of men for the military service, there has emerged as a by-product a picture of the health needs of the nation. The knowledge of the medical profession about the physical state and health of the American people has been widened and deepened by the Selective Service experience. Perhaps in no other way could this end have been obtained. The medical profession, in doing this work itself, has itself acquired the knowledge, has revealed the national needs, and now it must come forward with a program to meet these needs. Medicine, in a spirit of service, in a great and effective way, has helped to create our military establishment and has aided fundamentally in solving the whole war manpower mobilization problem and visualized as never before our health needs. Now that medicine has the diagnoses, remedy should be suggested and treatment begun.

In the beginning, the Selective Training and Service Act of 1940 was designed to provide the authority for the leisurely procurement of an army for national defense. This was most fortunate, since it afforded Selective Service an opportunity for orientation in numerous fields prior to the great pressure for manpower that followed the declaration of war. As since amended, the act provides for the wartime control of the allocation of manpower for both military and civilian needs: Procurement, on the one hand, through selection of the maximum number of qualified men needed by all the branches of the fighting forces for the successful

prosecution of the war; and, on the other hand, for war production through selective deferment of sufficient numbers of skilled workers in industry and agriculture, to provide all the necessary sinews of war and also sustenance for ourselves and our allies.

The dual function has imposed on Selective Service the need for frequent changes in policy to meet the constantly shifting demands for troops for service and for manpower in the production of food and armament at home and abroad. Regulations have had to be amended from time to time to meet changes in policy.

In the beginning the pool of manpower loomed great, so enormous that it seemed inexhaustible. However, as the various and expanding demands were met, it became apparent that only through the wisest allocation of manpower could the national objective be fulfilled. Major adjustments became imperative in matters relating to marriage, fatherhood, dependency, agriculture and essential occupations. Throughout it all the Selective Service System has striven to maintain an optimum balance in the supplying of all the various needs as defined by national objectives. General Hershey has guided Selective Service with a masterly hand.

THE MEDICAL FUNCTION OF SELECTIVE SERVICE

In five registrations between Oct. 16, 1940 and July 30, 1942 all the males between 18 and 65 years of age have been registered. Twenty-nine million fall between the ages of 18 and 45 but only 22,000,000 men, those between 18 and 37 years of age, are subject to induction. It is the function of Selective Service to classify all men within the 18 to 45 year range, and it is the function of the Medical Division to advise the local boards as to the physical requirements for acceptance into the fighting forces. It is in this connection that medicine has given freely of itself and has done a stupendous and magnificent job. In this program some 33,000 doctors and 10,000 dentists have participated as examining physicians attached to local boards or as members of the medical advisory boards. All such service has been gratuitous. In addition, civilian doctors have constituted the backbone of the examining groups at the armed forces induction stations.

In Selective Service, medicine has functioned at the national, state and community levels. The working unit is the local board, in which is centered the responsibility and authority for classification subject to appeal. Of such there are now 6,441, virtually all with one or more physicians attached. In addition, the medical advisory boards, now some 812 in number, have rendered expert medical judgment through their 8,000 to 10,000 members. The state medical officers, one or more in each state, coordinate the medical work of the local boards within the states and also serve as chief medical liaison officers between national and state headquarters.

The results of all medical examinations have been recorded on special forms provided for the purpose

(in the beginning form 200, subsequently form 221). Copies of all completed forms, more than 13,000,000, have been filed in the Philadelphia branch of the Division of Research and Statistics of the Selective Service System. Thus it is possible for appropriate authorities to obtain at will the record of any individual registrant provided he is properly identified.

The Changing Nature of Selective Service Examination.—In the beginning the examining physicians of the local boards were called on by the regulations to conduct a complete physical examination of all registrants classified as 1-A. This included the collecting of blood for serologic tests and also urinalysis and, in most instances, blood pressure readings. These physicians were urged to reject registrants or send them forward to the armed forces induction stations only when certain of their ground; otherwise to refer them to the medical advisory boards for more expert examination and judgment.

In the beginning the physical examinations were conducted by the local board examining physicians in their own offices as a rule. As time passed there developed a constantly growing tendency for the physical examination of registrants to be carried on by groups of physicians working in teams or groups at hospitals rather than as individual doctors working in their own offices. While the office examination usually required from forty to fifty minutes per man, it was found that the work could be more effectively handled by groups, reducing the time required for each registrant and simultaneously improving the quality of the examination. To a very great extent certain phases of the medical function of Selective Service were centered in hospitals located in large and medium size cities. Not only were doctors and dentists participating in this development but also considerable numbers of volunteer workers, including nurses, interns, medical students, legionnaires and others. As the result of this assistance, Selective Service was benefited immeasurably and the examination of registrants expedited.

The groups of registrants examined varied greatly in size, according to the number of local boards concerned and the quarters, facilities and personnel available, in some instances involving small numbers of 20 to 30 registrants and 2 to 4 medical examiners, and in others large groups of 100 to 200 men with 10 to 20 physicians. Many of these group examinations were efficiently organized and furnished unusually expert medical judgment. Under such conditions the medical personnel were unusually enthusiastic. However, individual examinations still prevailed throughout the nation with faithful service from thousands of examining physicians. This, in principle, briefly covers the medical function of Selective Service up to the present.

As time went on, it became apparent that some change would be necessary. As the ranks of the Medical Corps of the Army and Navy swelled, the ranks of available physicians for the Selective Service function were rapidly diminishing. In consequence, three possibilities for curtailment of doctors' hours were pilot tested in three different states: Pennsylvania, involving a preinduction examination; Ohio, omitting physicians in the medical examination; and Indiana, involving a preinduction examination, with a coarse screening of manifestly disqualifying defects by the local board examining physician.

This experience furnished the basis for the national adoption of the Indiana plan when the need for change

on a national scale became definitely established. The fixed authority of the Surgeons General of the Army and Navy for final selection, and the diminishing ranks of available physicians for local board service were the two most important determining factors back of the change. The present system, of which the collecting of blood for serologic examinations is also taken over by the induction stations, is born largely of necessity—the relative unavailability of physicians, chiefly in rural districts, and the pressing need of the civilian population for medical care. All changes have been effected with prior understanding of the Army and the Navy.

SOME OF THE MAJOR MEDICAL PROBLEMS ENCOUNTERED

Psychiatry.—Difficulties in this field were early anticipated for reasons that are obvious. In fact, Dr. Winfred Overholser, the medical director of St. Elizabeth's Hospital, Washington, D. C., wrote the President in August 1940 suggesting the need for special provision in this field. As a consequence an Advisory Committee on Psychiatry was created and an adviser to the Director on Psychiatry appointed. A national program of seminars was conducted for indoctrination purposes, and Medical Circular No. 1 on psychiatry was published for the guidance of psychiatric examiners.

Despite these efforts it soon became apparent that selection was faulty: that men were inducted who should have been rejected, thus resulting in high rates of discharge in the neuropsychiatric field. It was suspected that many were being rejected who might have been able to serve to advantage. As a result many other measures had to be adopted by Selective Service and by the military authorities to cope with the problem. Among them was the nationwide Medical Survey Program now in operation. This will be discussed in some detail later.

Dentistry.—The rate of rejections for dental defects has been very high and was on the increase rather than on the decrease. Because of this high rate of rejection a Dental Advisory Board was established at National Headquarters under the leadership of Dr. C. Willard Camalier, and Commander (now Captain) C. Raymond Wells, D.C., U.S.N.R., and president of the American Dental Association, the latter becoming chief dental officer of the Medical Division. This group outlined the needs of the examination and provided both personnel and facilities for the local boards throughout the nation and issued Medical Circular No. 2 (dental). As the result of their efforts, some eight to ten thousand examining dentists were added to the uncompensated personnel of the Selective Service System.

The rejection rate, however, continued high, so high that it became necessary eventually for the armed forces virtually to abolish dental standards, to accept men with dental defects and to rehabilitate them within the military services. The work of the dentists was very satisfactory, and their cooperation was splendid.

Syphilis.—Through the wisdom and cooperation of Dr. Thomas Parran, Surgeon General, the United States Public Health Service has made serologic tests on all registrants to date. It has served a most useful purpose, primarily in identifying those men afflicted with syphilis and revealing the magnitude of the problem of venereal disease to the nation. Statistical analyses disclosed that, of the first 2,000,000 registrants, positive or doubtful serologic reactions were encountered in 47 men out of every thousand examined. Because of the

numerical importance of venereal disease and the failure on the part of society to rehabilitate the syphilitic, their induction became imperative. The syphilitic have been taken into the service as rapidly as facilities for their treatment would permit.

Illiteracy.—Distasteful as it is, it must be admitted that illiteracy exists widely throughout the nation. Of the first million rejectees, 100,000 were disqualified because of illiteracy. The number of rejectees continued to mount until the military authorities were compelled to induct the illiterate and educate them in the service.

Hernias.—The military authorities are adverse to the induction of men with hernia except the small symptomless variety at the umbilicus. Early in the war period, hernia was accepted by the Navy and subjected to repair. Part of the difficulty in the repair of hernia, under compulsion, is the psychic trauma which results in painful scars and functional disability. Only after the hernia "pool" reached more than 200,000 were they found acceptable. At present all registrants with inguinal hernias are subject to induction except those descending into the scrotum. Within the Army the hernia victims are either operated on or carried under limited service. Hernias are included in the daily limited service induction quotas.

The President's Plan for Rehabilitation of Registrants.—Because of the unfitness for service of 50 per cent of the registrants examined and the urgent need of manpower for the armed forces, the President in October 1941 suggested a plan for the rehabilitation of as many registrants as possible. His plan provided that 200,000 at least be rehabilitated, under the auspices of Selective Service and its nationwide network of boards, that the rehabilitation be carried out in the registrant's home community by Selective Service in conjunction with the local county medical and dental societies and that this be effected at a reasonable cost for which adequate funds would be forthcoming.

Obviously this problem was extremely complex. It called for good judgment as well as adequate remedial measures and for cooperation on the part of all those interested in the healing art. In consequence, a meeting was called by Selective Service at National Headquarters, bringing together representatives of the schools and hospitals, of the American Medical and Dental Associations, of the Defense Health and Welfare Services to the War Manpower Commission, of the Council of National Defense and of certain federal and social agencies. The problems of rehabilitation were thoroughly discussed and, to some extent, the interest and the role of each and all of these organizations defined.

Army experience teaches that only certain types of cases are susceptible of satisfactory rehabilitation. In consequence, it was decided to limit rehabilitation to these types. In conference with the Surgeon General, it was further determined to limit rehabilitation to registrants who could be certified by the Army in advance as acceptable on completion of the rehabilitation specified. This plan obviously eliminated all waste effort and expense and limited rehabilitation to those who could subsequently be accepted into the military forces.

Shortly after the rehabilitation program was suggested the Japs made their attack on Pearl Harbor. As a result, the pressure for fighting men became extreme, and most of the registrants scheduled for rehabilitation were inducted in status quo and without

the correction of their defects. The plan was pilot tested later in Maryland and Virginia. The results were relatively meager. General Hershey decided therefore not to continue the plan but turned the whole problem over to the War Manpower Commission, which had been created in the interim.

PREHABILITATION

The President's plan provided for the rehabilitation of 200,000 men for service with the armed forces. It did not, however, solve the much greater problem of the lack of physical fitness and the prevalence of deficiencies and defects among other men of military age or among the civilian population as a whole. In this connection Selective Service offered its own plan, the plan of prehabilitation, which provided for a campaign of education concerning the standard requirements in the Army, the examination by the family doctor or dentist of those men who fall short of these requirements, the correction of remediable defects found by the doctor or dentist concerned on the usual doctor-patient relationship and the certification of prehabilitation by the doctor responsible for the correction of the defects.

This plan invited every registrant and every young man in the nation to fit himself in advance for examination and, if acceptable, for service with troops or industry. It emphasized the desirability of not permitting minor defects to defeat major objectives. It is particularly applicable in universities, colleges and schools all over the country, as also in labor and industry. The fact that defects are prevalent, as evidenced by the surveys of Selective Service, indicates a widespread need for improvement in physical fitness and health. This campaign accomplished much, particularly in making the nation conscious of national health needs and in laying the foundation for programs for physical restoration and physical training and for programs of prevention.

WARTIME SELECTION

Originally, Selective Service was concerned in the procurement of men for a peacetime army of moderate proportion and of slow growth and expansion. With Pearl Harbor and the declaration of war, came:

(1) the need for immediate and unprecedented expansion with a pronounced increase in the rate of induction;

(2) the immediate lowering of the physical requirements for induction, in some instances temporary in nature;

(3) the use of 1-B men (limited service) by the Army;

(4) a change in the character of examination for induction both by Selective Service boards and by the Army;

(5) abolishment of enlistment by the Navy, and Selective Service procurement for the Navy;

(6) the correction of certain physical defects within the military establishment, and

(7) the extension in the age range of those acceptable for military service, 18 to 38, as contrasted with 20 to 28 in the pre-Pearl Harbor period.

The advent of war resulted in a movement to increase the tempo of Selective Service and to enlarge the registered manpower pool to its maximum strength as rapidly as possible. The fourth registration, on April 27, 1942, required men between the ages of 45 and 65 to

register, and on June 30 of the same year persons between the ages of 18 to 20 were requested to register. In December 1942 inductions were limited to men of 18 to 37 years inclusive.

In August 1942 classification 1-A (r) (remedial) and 1-B (limited service) were eliminated, leaving IV-F as the only classification for registrants disqualified for general military service.

Dual v. Single System of Examination.—From a medical point of view the most important change concerned the type of medical examination given registrants by the local board examining physicians. With the final responsibility resting in the Office of the Surgeon General for a complete physical examination and the decided expansion of medical personnel in the Medical Corps of the Army and Navy, and because of increasing difficulty in obtaining adequate numbers of local board examining physicians, the Selective Service local board medical examination was abolished. In its place was substituted a preliminary physical examination, a screening test, whereby only those registrants with manifestly disqualifying defects were rejected. These defects were listed on D. S. S. form 220.

The fundamental change in procedure elicited varying reactions: satisfaction in areas where medical service was difficult to obtain; dissatisfaction and to some extent resentment, where medical services were still available. However, in the course of the next six months the new system was found generally acceptable. Notwithstanding the changed procedure, group team examinations still continued in larger centers. In Chicago and New York it culminated in mass examinations involving, in some instances, as many as 1,000 to 1,200 registrants per day.

As a result of the changed procedure and the increasing inductions, the relative rejection figures from local boards and induction stations underwent reversal. Under the final type of examination given on local boards, it was found that Selective Service was responsible for 41 of the 50 per cent rejections. But, under the screening examination, with the final examination given by the armed forces, Selective Service is responsible now for rejections of only 5.6 per cent of the 46.9 rejection rate during December 1943.

Throughout the first three years of existence, Selective Service continued to collect blood for serologic tests for syphilis. Selective Service discontinued this practice in the early months of 1944 and the collection of blood, as well as serologic tests, is now made at the induction stations.

Beginning in January 1943 Selective Service procured men for the Navy as well as for the Army. Enlistment, except under 18 and above 38 years of age, was prohibited.

Lowering the Standards as the Result of Need for Military Manpower.—The standards for admission to the fighting forces are established by the War Department (more recently after conference with the Navy) and adjusted from time to time to create the maximum possible available manpower pool. The level of the requirements depends on the number of men needed in the military services, the urgency of need, the size of the overall manpower pool and the relative need for men for military service and for production. Selective Service attempts at all times, through proper adjustment, to maintain the optimal balance in meeting manpower needs for national objectives.

Special Provisions for Selection in the Neuropsychiatric Field.—The most difficult problem of selection is in the field of neuropsychiatry. Many plans have been tried and an infinite number of possibilities suggested. The most important steps taken by Selective Service and the armed forces are as follows:

1. Provision in D. S. S. form 40 for the registrant's own statements relative to present or past mental difficulty.

2. A course of indoctrination, which was given in the early days of Selective Service through an educational campaign of seminars, and Medical Circular No. 1.

3. The local board judgment based on knowledge or information acquired locally or through the local board examining physicians.

4. The local board preliminary physical examination conducted by the local board physicians.

5. Provision for information to the local board by affidavits from physicians or statements of governmental agencies.

6. The Selective Service program covering the assembling of pertinent information, as set forth in section 623.33 (e) of the regulations.

7. Examination at the armed forces induction station

8. Observation period of three days at the discretion of the armed forces examining board. This period may be too brief in some instances. Perhaps it could be extended to advantage—a view stated a year or so ago by Dr. R. D. Gillespie on his visit here from England.

9. After rejection by the armed forces, a special review of findings by a medical advisory board if considered indicated and requested by the local board.

Medical Survey Program.—Despite all the various devices, rejection rates and discharge rates for nervous and mental diseases have still continued unduly high. The problem loomed very serious. In February 1943 a letter was received by the director of Selective Service, Major General Lewis B. Hershey, from the Secretary of War, Henry L. Stimson, outlining the difficulties and calling on Selective Service for a special program whereby information concerning registrants, pertinent to selection or rejection, should be assembled locally and transmitted to the psychiatrists on the induction boards for their guidance in arriving at decisions.

As a result, a national program has been developed. It involves the appointment of special advisers to each state director and the appointment of several thousand medical field agents, one or more to each local board, for the assembling of information, much of which is obtained from existing social and welfare agencies, the files of penal institutions and the like. Information is also obtained from school teachers or school records. Forty-six states now have some such program in operation; 8,000 medical field agents have been appointed. The program has the backing and support of the War Department, the Surgeons General of the Army, of the Navy and of the U. S. Public Health Service, and the U. S. Commissioner of Education. The program is well under way under the efficient coordination of Lieut. Col. Louis H. Renfrow and Dr. R. W. Waggoner.

The Present Size and Composition of the 4-F Pool.—It seems desirable at this juncture to consider the size and composition of the 4-F pool as it exists at present. This furnishes a much needed perspective. The 4-F pool has grown steadily during the past year

at a net rate of approximately 85,000 per month. This has continued despite the drastic lowering of standards, which has included among other changes the induction of limited numbers of men with uncomplicated venereal disease, with hernia and illiterates, and large numbers of men with dental defects. The size and composition of the 4-F pool at present is shown in the accompanying table. The age distribution in this group is of special interest; as of March 1, 1944 there were 1,400,000 under 26 years of age, approximately 700,000 between the ages of 26 and 30 years, and 1,400,000 between 30 and 38 years of age. Above 38 years of age, experience has shown that there are few that can qualify and serve satisfactorily. Above 38 years the rejection rate is over 60 per cent and the discharge rate unusually high.

Preponderance of Psychiatric Rejections.—Attention is called to figures presented on rejections: for mental disease 657,100, or 16.2 per cent; for mental deficiency (including illiteracy) 563,300 or 13.9 per cent; for neurologic disorders 208,600, or 5.1 per cent, totaling in these categories 1,429,000, or about 35 per cent of the grand total of the rejected

The picture as a whole shows that of some 13,000,000 examinations given there are still approximately 4,000,000 rejectees, despite the lowering of standards and all the rehabilitation that has been carried on throughout the nation. In addition, the discharge rate continues high. More than a third of the rejections are for neuropsychiatric reasons.

The question arises as to whether psychosomatic disease should be included in this category. They are closely related in many instances at least. They represent the visceral expression of disease, functional or organic in nature, rather than nervous and mental diseases per se. Selective Service figures revealed an unusually high incidence of psychosomatic diseases in peacetime selection, especially in the white. The incidence of neurocirculatory asthenia was 6.7 times as great in the white as for the Negro, and for peptic ulcer ten times greater. The effect of war has greatly increased the incidence of psychosomatic diseases in the Negro, who in peacetime appeared relatively immune. As a result, it can be stated that the psychosomatic disorders are appearing in increasing frequency in the Negro as well as in the white population.

Lack of Physical Fitness and Need for Physical Training.—Not only do the defects, deficiencies, disabilities, disorders and diseases abound, but, in addition, many of the registrants were found to be pampered, soft, flabby and in need of conditioning. Special training in physical fitness was necessary, after induction, which represented weeks of wasted time and effort which could have been avoided if every young man prior to induction had made himself physically fit.

Lack of physical fitness prevailed among the youth of the country because the nation failed to recognize its importance and because youth itself failed to earn fitness. Where does the fault lie? The present situation is the result of indifference and apathy on the part of the government, states, municipalities, parents, teachers, churches, the medical and dental professions, the U. S. Public Health Service and, to a certain extent, of youth itself. It is in a large measure failure in our education system and our homes. The failure is a combined one; youth is the victim. Only concerted efforts of all those concerned in the failure can

bring about the cure or, what is still more important, prevention for the future.

Physical fitness is a matter of development. The attributes essential to success in war and combat are strength, endurance, stamina, special abilities, leadership, initiative, emotional stability and the indomitable "will to win." Physical fitness is the bodily state which combines maximum power and efficiency, with the minimum time for recovery after exhaustion. It cannot be acquired overnight. It is a matter of evolution. It calls for time and for graded training in the development of the body and mind to maximum efficiency.

Estimated Principal Causes for Rejection of Registrants 18-37 Years of Age in Class IV-F, as of May 1, 1944

(Preliminary)		
Principal Cause for Rejection	Number	Per Cent
Total.....	4,049,000	100.0
Manifestly disqualifying defects	425,700	10.5
Mental disease.	657,100	16.2
Mental deficiency *. . . .	563,300	13.9
Physical defects	2,345,200	58.0
Musculoskeletal.	203,500	7.5
Syphilis.	286,800	7.1
Cardiovascular.	261,600	6.5
Hernia.	220,000	5.7
Neurologic.	208,600	5.1
Eyes.	206,100	5.1
Ears.	156,100	3.9
Tuberculosis.	107,700	2.7
Lungs.	69,600	1.7
Underweight and overweight	60,700	1.5
Feet.	51,700	1.3
Abdominal viscera. . . .	50,600	1.2
Kidney and urinary. . . .	41,900	1.0
Varicose veins.	40,700	1.0
Genitalia.	40,400	1.0
Endocrine.	38,800	1.0
Teeth.	35,800	0.9
Skin.	24,900	0.6
Neoplasms.	24,900	0.6
Nose.	24,300	0.6
Gonorrhea and other venereal diseases	18,200	0.4
Hemorrhoids.	16,500	0.4
Mouth and gums.	11,000	0.3
Infectious and parasitic. .	4,200	0.1
Throat.	4,000	0.1
Blood and blood forming. .	3,800	0.1
Other medical defects	23,800	0.6
Nonmedical defects.	57,700	1.4

* Includes registrants rejected for educational deficiency before June 1, 1943 and for failure to meet minimum intelligence standards after that date, as well as those rejected for mental deficiency.

Source: Forms 110, 111, 140A and 221

The President Creates a National Committee on Physical Fitness.—So important loomed the problem that in 1943 the President created a national committee on physical fitness under theegis of the Federal Security Agency and the chairmanship of Mr. John B. Kelly. This committee has worked assiduously in the field and from its national headquarters in Washington to educate the public concerning the present situation and to indoctrinate the people with a consciousness of the national need for conditioning. The committee has published many brochures and has aided many groups here and there in every state in the Union to set up the machinery whereby physical fitness may be attained. In the brief space of a year it has interested many national leaders and has harnessed together the interests and efforts of more than 150 national organizations that come in contact intimately in one way or another with the problems of fitness.

However, the committee has found that a great national movement for greater physical fitness awaits vigorous medical leadership. Hence this committee is bringing its problem to the American Medical Association and requesting the medical leadership essential to success.

CONSTRUCTIVE PROGRAM FOR PHYSICAL FITNESS

A Challenge to Medical and Social Leadership.—The amazing conditions revealed by the Selective Service statistics, as to the physical fitness of the nation, is a challenge to the medical profession particularly and to all interested in national health and national morale, and in the future of the nation and its youth. The conditions call for both a remediable and a preventive program. Everything should be done that can be done to improve the surprising conditions that have been revealed, and more must be done to prevent similar conditions developing in the rising generations.

The Need for the Leadership of the Organized Medical Profession.—This is a problem that not only requires the sponsorship and devoted efforts of individual medical men but calls for more: the organized sponsorship and support of the profession of medicine. The need for such sponsorship, leadership and support is recognized by the present National Committee on Physical Fitness of the Federal Security Agency, and it looks to the organized profession of medicine not merely for help but for active participation and assistance in the direction of the movement for physical fitness, for "better living through more vigorous health." Especially in the fields of physical restoration and preventive medicine, the social obligations of the medical profession are clear and the opportunity for national service is patent.

A Joint Physical Fitness Committee.—The immediate need is the formation of a functional joint committee of the American Medical Association and the National Council on Physical Fitness with strong and equal representation of the two organizations. This will furnish a broad based competent, professional leadership for a movement that will be immediately largely remedial in character but which from the beginning will be preventive in character and more so as the program evolves. The program should immediately seek Presidential and Congressional support to help in the improvement of physical fitness of the civilian population, to make it a part of the American consciousness and even of the American conscience by declaring the twelve months beginning with September 1944 a year of emphasis on physical fitness.

PHYSICAL FITNESS YEAR

The Proposal.—The National Committee on Physical Fitness specifically requested the cooperation of the American Medical Association (1) through a committee of five to act jointly with a similar group from the National Committee in the development and operation of a physical fitness special emphasis year; (2) the designation of a year beginning Sept. 1, 1944 as the "Physical Fitness Year" during which the Physical Fitness Program will be put into effect on a nationwide basis; (3) in the announcement by high authority (President or Congress) of the "Physical Fitness Year"; (4) to develop future planning during the Physical Fitness Year, which might include the consideration

of a suitable organization to handle the problem in perpetuity and to forestall for the future a recurrence of the situation such as herein revealed; such a permanent organization might well be one analogous to the National Research Council to function in the future in the realm of health and physical fitness as the National Academy of Science has functioned in science since created by Lincoln as a war measure in 1863, and (5) a National Physical Fitness Foundation might well merit and receive liberal private and public support.

A Broadly Based Continuing Program.—This would only initiate a program that will go on for years. It must become a part of our school programs at every level—elementary, secondary, advanced and adult. It must become a part of the personal hygiene and regimen of each individual as expressed in habit. It must find continuing expression in school journals, medical journals and journals of general circulation. There must go on comprehensive programs of research under the direction of the Joint Committee on Physical Fitness as well as stimulation of research in the university graduate schools and institutes of research, in insurance companies and in industrial personnel departments. The coordination of this research which is essential for the long time program will be done by the Joint Committee or by a special agency created by it, the Foundation of Physical Fitness.

I have only sketched and suggested the obvious need and the great opportunity which is before us for making the nation biologically fit for whatever is its mission in the postwar world. It is essential for our development as a nation. By making us more fit it will make us more dynamic. It will make us ready for the great opportunities ahead of us. In such a program in the interest of the whole nation for generations to come the medical profession will join with parents, educators, social workers, public health leaders and others. The special knowledge of the medical profession, its accepted leadership in the field, its social vision and its strategic social position will be an essential in a continuing long time program for a stronger, a greater America.

ABSTRACT OF DISCUSSION

DR. RAYMOND W. WAGGONER, Ann Arbor, Mich.: The medical survey program, which was announced last October and has been functioning since that time, consists primarily in getting information to the induction station through the use of certain forms. Form 210 is a form used to designate the individual, provided he has been in some mental hospital or has received treatment for mental disease by his physician. This is cleared through agencies and hospitals and through the social exchanges. Form 212 is a medical-social history form and has to do with the social and medical adjustment of the individual up to the time he reaches the induction station, and that is filled out by a specially designated agent called the medical field agent. One or more of these individuals, who should have social service training, is attached to each local board. There are more than 9,000 of them in the country at the present time. Forms 213 and 214 contain information obtained from the schools, and these are filled out by teachers in the school system. This information is in compact form and can be used by the psychiatrist at the induction station in a short time. It makes possible the rejection of men who might otherwise be accepted and who might fail in the military service, and it also makes possible the induction of some men who might otherwise be rejected at the induction station and who might be capable of serving. Thus it makes for a more efficient screening program from the

psychiatric standpoint. More physicians must be made aware of this problem. More general practitioners and more non-psychiatric specialists must become grounded in the basic psychiatric precepts and simple treatment procedures so that minor neuropsychiatric problems can be handled by them without referral to a neuropsychiatrist. This I think can be brought about first by a better understanding by the medical profession of the immensity of the problem and secondly by establishing a better basic training method. It seems to me that the medical schools should and must establish a better psychiatric training program. Teaching hospitals must do more than they are doing at the present time in training interns and residents in psychiatric precepts while they are being trained for service in other specialties.

MAJOR GEN. GEORGE LULL: During the past few years I have discussed privately with Colonel Rowntree some of these problems. It was hard for us to realize the exact state of the youth of the nation as revealed by statistics from the draft notwithstanding the fact that we had statistics from the draft in World War I, which were bad enough. These figures have been improved in certain aspects and are relatively worse in others, especially in the emotional group of diseases. It was planned to have some of these defects corrected by the profession at large without any organized effort. This was a failure. When we started out we wanted a physically fit army, an army made up of young men who had practically no defects. We gradually lowered our standards. We had to if we were to get an army. We had to take cases of venereal disease and treat them. We had to take the hernias and operate. We had to take the dental defects and correct them, and the amount of dental decay and other dental defects was appalling. The Dental Corps gives some interesting statistics: I think the best one that I have heard is to the effect that if all the soldiers who had partial or complete dentures made were put together they would comprise fifteen infantry divisions. This does not include, of course, the ordinary men who had fillings or extractions. That has been a big problem for the Dental Corps and in many of our camps they have worked three shifts of eight hours each. It is all right for the Dental Corps to work three shifts of eight hours each, but it has encountered serious difficulties as to what man would come around at 3 o'clock in the morning to have a tooth pulled after he had drilled all day the day before. So that there have been certain administrative difficulties. At one post in the Army I know that at the present time they are doing ten herniotomies a day. At this station a number of small units pass through for certain phases of their training, so that their pool is being replenished all the time by men with hernias and with certain other defects. Colonel Rowntree has told you about the large group of individuals who have remedial defects and whose defects are to be corrected. There is another group which is probably more serious than this, and this group is made up of those who have defects which could have been prevented earlier in life. It is too late now to do anything about this group, but I believe that we, as representatives of organized medicine, will have to take a stand and render medical guidance to any plan that is put into effect in this country to improve physical fitness. Every man in the medical profession will have to assist in this physical fitness program. The physical fitness of our youth is not improving on the whole. It is probably worse than it was in the last war. There are many factors other than the medical ones which have a bearing on this physical fitness, but something has to be done about it and I think that we are approaching it in the proper manner at the present time. It means that every man must do his part.

DR. R. L. SENSENICH, South Bend, Ind.: Within recent times there have been an increasing number of proposals from labor unions to the Council on Industrial Health of the American Medical Association expressing a desire not only for preemployment examinations but also some periodic health examinations and educational work in health matters. Now a new problem has arisen by reason of the fact that there

will be so many men returning from the military services who must have thoroughgoing physical examinations and placement on a basis of their ability to do a particular job if they are to be given their old positions in industry and are given any priority in that respect. This problem also has come to the Board of Trustees, and while we were familiar with this activity in a national way it seemed to lack as yet real form, definition or any real proposal as to the mechanism to be followed. The definition of physical fitness as it has been presented to the Board is that fitness, first, will result in a minimum of disability due to sickness of any type; second, will result in ability to recover rapidly from fatigue and exhaustion. Industry is interested in that. A fitness that will insure the ability to perform any task, whether military or civilian, efficiently within the limits of the human body. Physical fitness based on an ideal which will demand a common effort on the part of the individual to maintain vigor and health, and along with that will have some stimulation to appearance and those things which should be, especially to growing youngsters, of some pride in endurance and ability to do the thing which we stimulate in athletics in the schools today. Fitness based on sound home, school and community training. This definition includes the factor which we have all come to realize has been more or less missing; that is, some education in self discipline. The Trustees, after giving thought to this whole matter, appointed a committee of five to participate with a committee of equal number from a group of the National Council on Physical Fitness. As I understand it, these two groups are to be advisers to the activity. The Council itself comprises a much larger number of many agencies in order to give it breadth of interest and means of activity, but these two groups are presumed to advise and are given assurance that their advice will be given consideration, which is of some importance in so large a group. The committee appointed by the American Medical Association is composed of General Lull, Dr. L. A. Buie, Dr. Morris Fishbein, Dr. W. B. Stroud and myself. This is a big program. It is going to take a long time after its public announcement to accomplish its purposes.

DR. WALTER FREEMAN, Washington, D. C.: The importance of physical fitness as stressed by Colonel Rowntree is well founded. It has to be built up after the war. We are soft. At least we have been. I hope we are getting a little tougher now. The program that is to be set up is undoubtedly manifold, but essentially it is based on the combination of facilities, time and leadership. Facilities for this recreational—toughening—program have to be supplied by the communities. The time necessary for this restitution of the physical and mental stability has to be forthcoming, and probably the employers will find it to their advantage to grant some time during the working period for this program of activity. The utilization of time and the utilization of facilities will depend on leadership.

DR. HERBERT F. ROBB, Belleville, Mich.: The recognition of our physical defects is one thing and the cure of these defects is another. One is simple and the other is complex. The cure of those problems and their prevention take into consideration not only heredity but the environment—and the rapidly changing environment—and variable reactions of the individuals to those environments. The American nation has gone through one of the most rapid revolutions of any environment of any nation in the history of man; that is, the revolution from an agricultural frontier civilization over to an industrial, urbanized civilization. The strain of urbanization is intense. In making Selective Service examinations in the southwest corner of Wayne County, Mich., I have had people from every foreign nation and every section of the United States. Those who were mentally and physically unfit were largely the product of broken homes which were in conflict with civilization and the teachings of organized religious and political groups. If we will consider the psychosomatic problem of the individual we will arrive at a better solution of our problem.

PHYSICAL FITNESS PROGRAM

A REPORT OF MEDICAL AND DENTAL EXAMINATIONS OF 5,620 SENIOR AND JUNIOR HIGH SCHOOL STUDENTS

CARL A. WILZBACH, M.D.
Commissioner of Health
CINCINNATI

Even in matters as vital as health it would seem that it takes a war to do a job that could have been done well years ago. It has always been difficult to have acceptable school health examinations made and harder still to have the defects found corrected. The task of getting these defects corrected is usually left to the school physicians and nurses. In time of war, however, with every one wanting to do "his bit," latent ability and help can be called on both to make the examinations and to assist with the efforts of having corrections made.

When the United States Office of Education proposed the High School Victory Corps Physical Fitness Program in January 1943, Cincinnati joined with other cities in the nation and put into effect this war emergency program. It was pointed out at that time that there were 28,000 high schools and 6½ million high school students. It was further stated that there was a war to be won and that the high school students are a potential source of trained manpower and that they should prepare youth for war service and for active participation in industrial, agricultural and other war efforts. Preinduction courses given the boys and girls included guidance in war service, community services related to the war and finally a course in physical fitness.

Before entry on the physical fitness program a health examination was required. The task of examining more than 5,000 students required considerable organization. The school medical services in Cincinnati are a function of the health department. Conferences for discussing organization and plans were held. These included the superintendents of schools, the commissioner of health, the director of school hygiene, the director of physical education and the director of dental hygiene. The examinations were made much as they are in large induction centers for selectees and were done in each school. The examination forms used were similar to those prepared for Army officers. Eighteen physicians and forty-three public health nurses and supervisors employed by the health department were responsible for the physical examinations. Dental examinations were made by dental hygienists. The extra assistance made possible because of the war stimulus was given by Red Cross volunteers, nurse's aides, parent-teacher representatives, school principals, physical education teachers, classroom teachers and the women's auxiliary of the county medical society.

Previous to the health examinations, auditorium lectures were given explaining the reason for the examinations and the necessity for hearing tests, blood tests, x-ray examinations of the chest and other parts of the examination. The need for having defects promptly

cared for was also stressed. In addition, a special preinduction course on health education, running through the entire school year, was inaugurated.

The organization for the correction of defects was augmented by the school personnel. A student needing medical or dental attention was first approached by the school nurse and then, if necessary, in succession by the classroom teacher, the physical education teacher and the principal. Each of these were provided with a list of the students requiring attention. Needless to say, it was these added obligations taken on willingly because of the war emergency by the school teaching force that helped to make the efforts successful.

While the number of certain defects found was small, it must be remembered that those examined were junior and senior high school pupils. Besides having had the care of private physicians, most of them had been examined in preschool round-ups and in schools in the first, third, fifth and ninth grades, and after that some of these students were examined a number of times to qualify for athletic competition. Almost all of the gross organic defects were already known to the school doctors, nurses and school authorities. Efforts had been made throughout the school life of the student to encourage him to secure the needed corrections. It is recognized that some defects could not be overcome, and they are included in the total figures. Records were kept on corrections until May 31, 1944. Since that time additions could be made to the corrections, and many other pupils preferred to wait until the summer vacation for their medical and dental attention.

Five thousand, six hundred and twenty white and Negro senior and junior high school boys and girls were examined. In this number 2,293 physical defects were found. Some students had more than one defect.

Four thousand, six hundred and ninety-eight students, 83.55 per cent of all examined, had one or more dental defects.

VISION

Reviewing the more important organic defects most affecting the future health of the student, it was found that 342, or 6.1 per cent, had impairment of vision. Some of these students had been fitted with glasses that at the time of examination did not correct their faulty vision; some had been to the ophthalmologist and had failed to return for recheck; some had glasses but were not wearing them. By June 1, 1944, 235 students had had their eyes corrected by physicians and 42 were under their physicians' care. Corrections amounted to 80 per cent.

HEARING

Individual hearing tests were made on 5,623 students using the Maico type D-18 audiometer. Of this number 217 were retested. A total of 116, or 2.1 per cent, had some hearing loss, and these were referred to their physicians. A special referral form was sent to the otolaryngologist suggesting that lip reading classes were available should he wish to recommend them. A large group of volunteer Red Cross nurse's aides, under the direction of registered nurses, made the hearing tests. Qualified otolaryngologists had cared for 69 of these 116 students at the completion of this report.

NOSE AND THROAT

Closely related to the hearing problems and with the possibility of causing serious organic disease were found 137 boys and girls with enlarged and diseased tonsils.

Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 16, 1944.

Miss Florence Schrieber, R. N., supervisor of school nursing, organized and guided the entire program and made this report possible. She was ably assisted by health department physicians, nurses, technicians, laboratory specialists and particularly Dr. Bernard Schwartz, Dr. David Hensinkveld and a host of volunteers.

These defects made up 2.44 per cent of the total defects found. Here again the follow-up efforts to have tonsillectomies done are difficult, but a month before the school year ended 44 students had their tonsils out and 30 more had appointments with their physicians for operations.

TEETH

Of the 5,623 students examined dental caries was present one or more times in 4,698, or 83.3 per cent. These findings are similar to other surveys made, such as the National Youth Administration and the Selective Service examinations. It would seem advisable for the school dentists to come to some agreement with the dentists in private practice as to what is a cavity. In the efforts to have defects corrected the busy dentist in private practice did not always take kindly to the school dentists' referrals.

The importance of sound teeth has been emphasized in school dental programs. A check of the yearly school dental records in Cincinnati shows gratifying improvement. While the number of instances of caries found seems high, Dr. Horace Jones and his assistants reported most of the mouths examined in good condition.

HEART -

There is no more important function of the school health service than to find abnormal and damaged hearts and to guard against further injury to the individual either in school activities or in after life.

In the initial examinations the school physicians screened out 242 students with some abnormal heart condition. Following the x-ray examination of the chest 61 were added, making a total of 303, or 5.3 per cent, of the total pupils examined.

Dr. Bernard Schwartz, cardiologist and director of the Max Stern Heart Station, with the help of an enthusiastic group of volunteers from the Woman's Auxiliary to the Cincinnati Academy of Medicine (which is the Hamilton County Medical Society), assisted by public health nurses, reexamined all of these suspected heart cases. Electrocardiograms, sedimentation rates, blood counts, basal metabolism tests and additional x-ray examinations were made.

On reexamination of the 303 with abnormal hearts, 209 were found to have no organic heart disease but included functional and accidental murmurs and neuro-circulatory asthenia.

The remaining 94 had definite organic heart disease and of these 29, or 31 per cent, had rheumatic heart disease. There was an additional 16 per cent with possible rheumatic hearts. These gave a history of previous illness, and the examinations revealed suggestive signs and symptoms, all indications that they had rheumatic fever. Rheumatic heart disease then accounted for possibly 48 per cent of the total number of hearts with organic defects.

The examinations revealed 4 students with definite rheumatic heart disease with histories of previous attacks who at the time of their examinations had mild fever and should have been in bed.

In an effort to make the general practitioners conscious of rheumatic fever, in March of 1942 the Cincinnati Academy of Medicine and the Cincinnati Heart Council requested the board of health to make rheumatic heart disease a reportable disease. This request was promptly complied with.

Rheumatic heart disease is the most common form of heart disease in children and is said to be responsible for more deaths in ages 5 to 14 years than any other serious infectious disease of childhood.¹ It is further said that the toll of disability is far greater than that taken by poliomyelitis, for 60 per cent or more of rheumatic fever patients develop permanent heart disease.

Following the examinations, a letter including the diagnosis was written to the family doctor and signed by the cardiologist. This letter was sealed and carried by the school public health nurse into the home of the student.

TABLE 1.—*Report of Heart Examinations*

Total number with heart abnormalities found in screening examinations.....	303	or 3.38%
Reexaminations:		
No organic heart disease.....	177	
Functional and accidental murmurs.....	30	
Neurocirculatory asthenia.....	2	
	209	or 3.71%
Organic Heart Disease		
Rheumatic heart disease.....	29	
Possible rheumatic heart disease.....	16	
Congenital heart disease.....	17	
Tachycardia.....	13	
Hypertension.....	12	
Cardiac hypertrophy.....	4	
Cardiac arrhythmia.....	2	
Organic hypertension.....	1	
	94	or 1.67%
Heart Cases		
Rheumatic Heart Disease	Possible Rheumatic Heart Disease	
White male..... 7	White male..... 6	
White female..... 17	White female..... 8	
Colored male..... 1	Colored male..... 1	
Colored female..... 4	Colored female..... 1	
29 or 30.85%	16 or 17.02%	
Congenital cyanotic heart disease.....		
Congenital cyanotic heart disease.....	White male..... 4	
Congenital cyanotic heart disease.....	White female..... 6	
Congenital cyanotic heart disease.....	Negro male..... 1	
Congenital cyanotic heart disease.....	White male..... 1	
Congenital cyanotic heart disease.....	White female..... 1	
Possible congenital heart disease.....	White male..... 1	
Possible congenital heart disease.....	White female..... 1	
Hypert thyroid.....	White female..... 6	
	White male..... 6	
	White female..... 3	
	Negro female..... 1	
Essential hypertension.....	White male..... 7	
Essential hypertension.....	White female..... 4	
Cardiac hypertrophy.....	Negro female..... 4	
Arrhythmia.....	White female..... 2	
Hypotension.....	Negro female..... 1	
	49 or 52.13%	

Where necessary these students were recommended for special vocational training suitable to the heart condition. Efforts were made to have them take classes with other normal pupils and to have the classes on one floor.

TUBERCULOSIS

It would seem that the high school is not the place to find tuberculosis; at least this seems true in Cincinnati. Three thousand, six hundred and twenty-two students voluntarily took x-ray examinations with 4 by 10 inch films. All questionable films were rechecked with standard 14 by 17 stereo films. One white male and 1 Negro female, or 0.05 per cent, were found to have active tuberculosis. This is all the more astounding when it is remembered that among this group taking x-ray examinations there were 368 Negro boys and girls. The tuberculosis picture is apparently changing.

1. Vital Statistics of the United States, 1940.

for until recently the 16 to 20 year old age level had one of the highest tuberculosis rates. Four suspected cases are being rechecked. From the x-ray findings, 82.5 per cent showed primary phase tuberculosis: 70.1 grade 1, 10.2 grade 2 and 2.26 grade 3. Of the 3,622 x-rayed, 626, or 17.28 per cent, had negative x-ray findings.

The x-ray diagnoses were made by Dr. David Heu-sinkveld at the health center of the Cincinnati Health Department.

SEROLOGIC TESTS

Serologic tests were made on 3,581 students, including 3,180 white and 401 Negro boys and girls. Twelve positive serologic reactions, or 0.33 per cent of the total, were found. Of the positive serologic reactions 9, or 2.2 per cent, were in Negroes and less than a tenth of 1 per cent (0.09 per cent) were in white children. None of the cases were infectious.

In studying the individual histories and reports of examinations, only 1 had a definite diagnosis of congenital syphilis. It was also difficult to obtain a history

or were under treatment by private physicians or public clinics.

Of the 4,698 pupils with dental defects, 2,540 were corrected by private dentists and an additional 535 were still going to the dentist. This represents 65.4 per cent of the total. Public dental clinics had corrected 144, and an additional 18 pupils were still visiting the dentist, accounting for 3.4 per cent of the total. Sixty-nine per cent had dental corrections or were under treatment by private dentists or public clinics.

SUMMARY

1. Five thousand, six hundred and twenty-three high school students were given medical, dental and psychiatric examinations as a part of the Victory Corps Program. Their general physical condition was excellent and a credit to the physical fitness program in the schools. Their good health status was further indicated by a low tuberculosis, venereal disease and organic disease rate.

2. There was found a need for more serious concern for rheumatic fever and heart disease in school children.

TABLE 2.—High School Physical Fitness Victory Corps Program Chest X-Ray Reports, Combined Term 1943-1944

	Total	Primary Phase Grade 1		Primary Phase Grade 2		Primary Phase Grade 3		Negative		Suggestive		Active	
		Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
White male	1,579	1,108	70.17	116	7.35	19	0.13	332	21.02	3	0.19	1	0.06
White female	1,069	1,173	70.28	198	11.86	40	2.40	258	15.46	..	....	..	....
Negro male	115	85	73.91	12	10.43	6	5.22	12	10.43	..	....	..	....
Negro female	253	172	67.98	43	17.00	12	4.72	24	9.47	1	0.04	1	0.04
Yellow male	5	..	....	..	....	5	100.00	..	....	..	....	..	....
Yellow female	1	1	100.00	..	....	..	....	..	....	..	....	..	....
	3,622	2,539	70.13	369	10.19	82	2.26	626	17.28	4	0.11	2	0.05
Total number x-rayed								3,622					
Total number with positive findings.....								2,996 or 82.72 per cent					
Total number with negative findings.....								626 or 17.28 per cent					
Total number with active tuberculosis, x-ray evidence.....								2					
Total number with suggestive tuberculosis, x-ray evidence.....								4					
Total number rechecked to date.....								86					

of exposure or of past signs or symptoms. A diagnosis of early latent syphilis was made of 5 students. One student had had five years of treatment. All but one of these students are under treatment.

PSYCHIATRIC QUESTIONNAIRE

A psychiatric questionnaire, prepared by Dr. Jack Hertzman, acting director of school hygiene, was filled out by 4,213 students and 43 per cent recorded one or more significant symptoms. There were ten questions in all and they were asked in a manner that did not betray the purpose of the questions. The questions were related to the following: allergies, recorded 448 times, choking spells and pounding heart 341 times, stuttering 242 times, nightmares 225 times, dizzy spells and fainting 185 times, kidney trouble (bed wetting) 172 times, asocial tendencies 103 times, excitement over school examinations 92 times, pains and diet 55 times and fits 25 times. These investigations and findings will be reported on in detail later, and no attempt is made to interpret them in this paper.

A report on corrections shows that of the 2,293 physical defects found 801 had been corrected and an additional 491 were under treatment by private physicians. This represents 56.1 per cent of the total. Public clinics had corrected 359 and an additional 200 were undergoing treatment, accounting for 24.3 per cent of the total. Eighty per cent plus had physical corrections

3. Army induction doctors report these young men in good condition when they appear for examination, some with hernias repaired, others with minor surgery and dental needs cared for as a result of the school examinations.

4. There was a high percentage of corrections, due largely to volunteer assistance and additional help from school principals and teachers. These gains must not be lost after the war.

ABSTRACT OF DISCUSSION

COL. L. G. ROWNTREE, Washington, D. C.: This is prehabilitation at its best; it is a magnificent accomplishment. This is really what we advocated in prehabilitation three years ago. In Selective Service we hoped that some such program could be started. Startling was a 25.3 per cent rejection rate at 18 to 19 and a 45 per cent rejection rate for the Negro. There is a tremendous need in the Negro as compared with the white race. If we can multiply the results reported for Cincinnati by a hundred and apply this to the nation as a whole, a tremendous step forward will be taken that would mean much in the health movement among the youth of the nation.

DR. R. B. CRAIN, Rochester, N. Y.: I was much interested in what Dr. Wilzbach said about the percentage of heart cases found in his survey. Five and three-tenths per cent seems to me rather large, as it is generally considered, I believe, that between 1 and 2 per cent of school children have organic heart disease. Perhaps the additional x-raying and taking of electrocardiograms may have accounted for that higher percentage.

I was interested that out of the number examined he found a large percentage of rheumatic heart disease. This is in keeping with an experience which the Heart Committee of the Monroe County Medical Society had in Rochester about ten years ago. For four years we examined those students in high schools found in the annual inspection to have some cardiac abnormality, and it was our experience that from 25 to 30 per cent of the total examinees had organic heart disease. I believe our committee was able to free many of these students for normal activities in high school—participation in gymnasium and sports. After consultation with the family physician we were often able to persuade them to give these students more liberty. It is important that students are not continued as cardiac cripples through life through fear of injuring themselves by participation in normal sports. I should like to ask whether in the examination he described the family physician was consulted and greater freedom obtained for those who did not have organic heart disease.

DR. EMERY R. HAYHURST, Columbus, Ohio: I should like to ask Dr. Wilzbach in the follow-up procedures whether an inquiry is made about the nutritional status of these students. What is the fluorine content in general of the Cincinnati water supply, and did they note any correlations that might have a relationship to this high dental caries situation? Is the dental examination apparently limited to the finding of caries meant to include the gums? I have in mind, of course, the possibility of gingivitis without caries.

DR. A. A. PETER, New Haven, Conn.: What record system do you use for the continuation of observation of these thousands of children? Do you, for example, use Wetzel grade and record development on levels of correlation of age and height and nutritional status?

LR. F. L. RECTOR, Lansing, Mich.: I am interested to know what was found in relation to tumors, particularly cancer, in these youngsters. We have made some study of that problem in our work for the state health department in Michigan and have found that we do not have any figures on cancer morbidity; we have had a surprising number of deaths under the age of 20 from various types of malignancy. In compiling our cancer deaths under age 20 we have included leukemia. We recognize it is a form of cancer. It is universally recognized as cancer of the blood cell forming tissues.

DR. BERNARD A. SCHWARTZ, Cincinnati: Two things impressed me that I thought were important: 4 cases of rheumatic heart fever, which I thought an indictment of the general practitioner, not cases coming to the clinic but the white collar case being taken care of by the practitioner. The second point is hypertension. We found 14 cases of high school age students with definite hypertension who were sustained types, because these pressures were checked and rechecked. Mass surveys were made in Cincinnati from 1926 to 1936, giving estimates and percentages of cases of heart disease. The survey made this past year was refined and gave us much more evidence of what is going on in our public schools.

DR. CARL A. WILZBACH, Cincinnati: Only juniors and seniors were examined. There is an accumulation through the years. When you reach the senior year you have a collection through the years during which these youngsters were in school. Maybe that accounts for the higher percentage of cases of heart disease. On the rheumatic fever heart cases we tried to get a letter to the doctor of the child concerned, a sealed letter we hoped would go directly to the family doctor from the cardiologist. Not a great deal was done on nutrition. I think that is an important part of the examination, but is was not tabulated. I cannot give you the fluorine content of the water. Trained dental hygienists made the examination, and I am sure any unusual gum condition would have been reported. With regard to personal follow-up, I should say the children with defects remain on the lists of the school nurse as long as the defects are not corrected. A persistent effort is made to check back to find out if the defects are corrected. While the schools are in session nurse, the classroom teacher, the physical education teacher and the

principals all assist. We do not use Wetzel grade in our work. With regard to cancer, we did a rather thorough examination of the skin, and we have recorded those we found with acne and other skin diseases. We did not see anything that we thought was cancer.

PHYSICAL FITNESS IN INDUSTRY

W. P. JACOBS, LL.D.

CLINTON, S. C.

In this war emergency our leaders in Washington have called on the workers in American industry to make and keep themselves physically fit to assure their supreme contribution to the prosecution of the war. Selective Service figures show over one million men of the first two million called for military service rejected as unfit. This represents a serious problem and indicates the difficulty faced by our leaders in organizing an all out war.

Just as the military provides physical fitness training to make and keep the armed forces fit to fight, so must industry, labor and community provide opportunities for training for physical fitness to keep our working men and women in top condition on the home front. In the beginning, however, workers in the specialized fields have a perfect right to ask What specifically is meant by physical fitness? The terms are general and difficult of specific definition. Nevertheless, perhaps the following will suffice.

Physical fitness is a condition which results in a minimum of disability from sickness. It will insure performance of tasks efficiently and well. It will result in rapid recovery from fatigue and exhaustion. It will produce a high degree of health and vigor and a rugged endurance. It will facilitate strong self discipline, the avoidance of soft living, an increased pride in physical vigor; it will encourage self direction and inner determination.

The secret of physical fitness may be said to be adequate medical care, fresh air and sunshine, balanced relaxation, good food, proper sleep, regular exercise. This foundation involves a proper balance of the daily habits, sound eating, ample walking, daily calisthenics, care in exercise, participation in competitive sports most suited for the need of the individual. And above all else it involves patriotic determination to keep fit.

Physical fitness in industry, like other types of preventive treatments, has been slow in catching popular favor, and its growth has been unusually spotted over the United States. Education, while offering an assurance of very definite future dividends, has found the growth of its popularity very slow indeed. As a consequence only a relatively small proportion of the population has actually enjoyed the privilege of a higher education.

Physical fitness in industry involves extensive education to promote its expansion. In fact it is education of a very vital type. Its justification is sound and obvious and yet its adoption is slow and uncertain. The principal reason for this hesitation is that the advantages of physical fitness to industry involve too much of preachment, and the American people have learned the art of consigning most sermons to the other fellow.

Physicians can readily understand the psychology of the American mind, which surveys all prevention with

skepticism. The average American does not have too much confidence in his own consistency and therefore doubts his own ability to adopt the regular regimen or treatment necessary for prevention. He is much more inclined to let nature take its course and take his chances with the ultimate cure.

It is easy for any one to foresee that physical fitness in industry will increase production, reduce cost of production, improve individual productivity and earning power, assure greater happiness, longer life and better worker morale and perhaps afford a number of other plausible advantages. Yet in spite of the perfectly obvious benefits to be obtained by the workers and by management and stockholders as well, physical fitness is one of those creators of intangible profits the full value of which is not seen at a glance. With the modern industrial humanitarianism, however, the theme is growing in popularity and in value. The adoption of the principle in an industrial enterprise usually brings excellent results when it is planned, adopted and operated with and under the direction and advice of the medical profession.

Physical fitness as it applies to industry involves a highly technical analysis in application, and it produces its best results when undertaken under the influence of the medical profession. Nor is the application of the theme a group problem, as would be believed at the first glance. It is strictly an individual problem. It is the life of the individual which must be made more fit, and the formula required by each individual differs from the other. One man or woman can safely adopt one type of sport or other type of recreation for the building of physique, while another may find it necessary to select an entirely different method. Some can use very vigorous exercises, like baseball, basketball, tennis, football, boxing, weight lifting, hockey or other activities which demand unusual physical exertion, while others may find it necessary to confine their activities to horseshoe pitching, chess, victory gardening or just walking. The well rounded and soundly conducted program of physical fitness in industry must take all of these factors into consideration to be at its best and be based on the careful diagnosis of each individual worker by a competent physician if it is to be safely conducted and if it is to produce the best results.

Next to expert professional advice, the greatest essential of a successful physical fitness program is planning. The ordinary haphazard, hit and miss type of program can easily do more harm than good. There must be systematized planning if the program is to attain proper results, if it is to receive popular acclaim, if it is to earn adequate participation and if it is to avoid the dangers of indiscretions.

Planning involves a careful advanced analysis of the field, of the objectives sought, of the equipment available and possible, of the compelling recreational and athletic habits of the people whom the program is expected to aid. The survey should incorporate adjacent fields, their customs and environment.

It should differentiate between age and sex groups and the potentialities of participation by management, labor and the community. It should be a comprehensive study of all factors which handicap, help or otherwise influence the health and strength of the individual worker. A study of individual and community living habits is essential. A study of diets, a survey of the

clinical records covering the industrial community if available will greatly facilitate the analysis of the need of a physical fitness program and the results which may reasonably be expected. Likewise the study of sanitation and a study of the local supplies of food which can be contaminated is indicated. Drainage, garbage disposal, refrigeration and the many other factors which influence community health should be studied to determine whether there are apparent and glaring general conditions which are so flagrant as to jeopardize the health of the community.

However, the secret of the success of a program of industrial physical fitness is found not in the community services but in the education of each individual. Physical fitness is a very personal and individual problem. When and only when the individual is convinced that greater personal health and individual strength will pay him dividends both tangible and intangible can one reasonably expect appreciable results from such a program.

We have heard much talk of state or group medicine, and there is no denying that there is a great deal of glamour attached to such mass practices. However, the actual results of group medicine are disappointing except where the industry-wide effort is intended merely as a forerunner to and a stimulant for individual action. Physical fitness, like medicine, is an individual and very personal function. Its success hinges on the question of what the individual will do about making himself more physically fit. While industrial programs of recreation and sports are built around mass action, their success is measured by the physical condition of each individual, and that is dependent on the correct diagnosis of the need of each individual and the extent to which the individual embraces his or her opportunities to get and keep fit.

Americans, more and more, have quit the playing fields to sit in grandstands and stadiums. We have become a nation of spectators, thrilling to the feats of professionals, semiprofessionals and pseudo amateurs. We rent cushions to sit on at the games and stuff ourselves on peanuts, soda pop and hot dogs.

There is, of course, a place for the great sports spectacles, but there is an even greater need for individual participation in moderate and healthful exercise.

In the adoption of a physical fitness program, management and labor and the community have a responsibility to encourage and aid the individual to become and keep physically fit.

The aim of every program should be participation by all employees.

There should be widespread education as to the importance and the need of physical fitness. All community facilities should be made available. Programs, wherever possible, should be made self supporting and self directing. And, as America will never become enthusiastic about regimented calisthenics, the competitive spirit should be stressed and physical fitness programs built around individual participation and the "will to win" spirit. Leadership should be selected and developed from among the workers themselves. The full cooperation of all community agencies should be enlisted. All types of recreation and sports which lend themselves to the local situation should be utilized to make the program as broad in its coverage as is possible, and the program should be made an all year round effort.

The larger industries throughout the country are making rapid strides in this field. There is nothing

particularly new about it except the emergency in which we are living. From a long range standpoint, the further we go in our high tension type of modern living the more we need to emphasize concerted individual action and keep physically fit. But in the war emergency, when the success of our armed forces is depending so completely on the ability of our workers on the home front, physical fitness in industry becomes a compelling need and utterly indispensable.

The accomplishments so far in this field can be largely credited to the members of the medical profession who have been working so faithfully in preserving the health of the workers in the industries of America. The future success of physical fitness in industry will necessitate the combined capacity of the medical profession of America. It is a highly technical and highly specialized job which involves medicine, psychology, sports, physical education, community planning, leadership and in fact all phases of human life. The program of physical fitness in industry merely offers a vehicle through which the skilled services of the physicians of the country may be broadened in scope and in contribution, in an opportunity for the practical popularization of preventive medicine as well as curative. While the responsibility rests on the individual worker himself, Doctors of America the opportunity is yours.

Thus have I briefly outlined a nontechnical description of a well rounded physical fitness program. The success of this program, of course, depends on the full cooperation of all concerned. Though it is a matter of dealing with preventive medicine, I am not going to say that the full responsibility of the program devolves on the physicians; I am here, however, to pledge the full cooperation and inspired leadership of the agencies of the government designed to promote physical fitness in industries. I am here to pledge the cooperation of the industries of America in executing this program; and while I have no authority to speak for them, I am confident that the medical profession will have the full support of the workers of America and their unions. They are well represented on our committees and are cooperating beautifully in this effort.

Nevertheless, the program will succeed in direct ratio to the full cooperation of all interested: industry, labor, government, education, local communities and, more important than all others, the medical profession. You are needed to do the work of indoctrination, to advise good management in the building and operating of the program and to give professional advice to the industrial workers as they get and keep physically fit.

There will be many who will discourage the building of this program on the assumption that it is another one of those ideals that start well but soon peter out. This is true. It is also true that truth hurts on occasions when the levity of our leaders overlooks the importance of persistence and constancy in a program of this kind. The medical profession can lead, enthusiastically support and lend its professional services and thus encourage a continuous constructive effort. Though physicians do not have the time to assume the leadership of such a national movement, their full support is necessary nevertheless. Without it the program cannot succeed.

It is my firm conviction that if through your counsel and assistance we can build a physically fit America,

the step will result in vast benefit to the workers of America and to the medical profession as well. And so I say to you, the medical profession, we laymen in the private and business fields lay this responsibility on you, and we urge you to accept a full measure of the inspiration and action which your profession is so capable of producing.

ABSTRACT OF DISCUSSION

DR. W. A. SAWYER, Rochester, N. Y.: Those of us who have been in industry for a number of years know full well the need for such a program. We know it now especially when the manpower situation is at such a low ebb. The sort of workers that we have today are in great need of rehabilitation and reconditioning. Medicine in industry has practiced prevention or at least has preached prevention and tried to practice it from the beginning. We know that physical fitness makes for greater production, less absence and better health. There have been occasional efforts to develop programs of this character in some industries. Today in most of the larger industries you will find recreational clubs and athletic competitions of various character but little of a specific reconditioning or training for physical fitness. Among executives there have been programs of gymnastics and other physical conditioning processes. I know one industry in which a gymnasium was provided. The supervisors, the executives, were urged and implored to take advantage of it. A number of them did. In the rubber industry I know another instance in which that was done for a number of years, but I have known of no industry in which the program was continuous or which took hold in any large way. In communities where Y. M. C. A.'s, Y. W. C. A.'s and the like offer facilities to industrial workers they are even holding gymnasium classes for the night workers, programs during the day and also programs during the night for some of the shift workers. They have not been great successes, however. There is a lethargy and apathy and indifference to them. It needs some sort of crusading spirit, some sort of new leadership, to develop this idea.

COL. L. G. ROWNTREE, Washington, D. C.: Mr. Jacobs is doing one grand job right now. He is the spearhead of the physical fitness in industry in the nation, under the auspices of the National Committee on Physical Fitness. Mr. Jacobs has told us how it is possible to attain these objectives individually, as communities, and nationally. The problem is largely one of education. It calls for vigorous medical support and leadership. This program really would make of every physician and medical man a counselor as well as a physician, a counselor in physical fitness. That cannot be done without education within our own ranks, because few of us know much about training for physical fitness. Mr. Jacobs is dealing at the present time with sixty million workers. If they will heed and accept and if we heed and accept, then this nation and the individuals in this nation will benefit immeasurably.

DR. CARL A. WILZBACH, Cincinnati: I have had the distinction of being a worker in the physical education field as well as in medicine. It is heartening to hear this paper. The medical profession has never supported exercise and physical fitness as it should have. We have to have wars to demonstrate how much it is needed in industry as well as in school or wherever our people are. It is something that the person has to believe in and then want to do. The job isn't easy unless you have all of the influence bearing on the problem coming to the individual. The medical profession ought to get back of this physical fitness program. The statement that a man after 40 years of age ought not exercise at all is not good advice. Much of the work today in the armed forces or in civilian life is being done by older men who are in good shape physically. If men stop exercising after 40, a great deal of the world's work will not be done.

DR. KINGSLEY ROBERTS, New York: You do not practice health conservation on people; you practice it with them. If you do not lay accent on the educational side of the physical fitness program, no matter how it is backed, it will fail. One factor that has not been mentioned here is the necessity of drawing the worker himself into the program, whether he is organized or unorganized. Such a program must carry with it the urging by the medical profession of the formation of labor-management health and welfare committees which will interpret what the physician has to say in terms that the worker himself will understand and will believe in. The medical care that the worker gets outside of the influence of the industrial physician is as important as the care that he gets within the scope of the industrial physician's activities.

DR. IRVING GRAY, Brooklyn: In a discussion of physical fitness in industry the importance of health education should be stressed. In Brooklyn, through the efforts of Dr. Landes, department of health officer in the Fort Greene district, there has been developed the Fort Greene Health Center. Representatives of industry, organized labor, the county medical society and various public health agencies are all cooperating in bringing to the industrial workers a complete health program. Information as to the importance of physical fitness, proper nutrition and preventive medicine reaches large groups of industrial workers through this organization. The preemployment or preplacement physical examination is essential in determining the character and extent of the activities of an individual in any physical fitness program. The plan of physical fitness in industry should really be an extension of the program which is part of the training in the schools. Industrial relationships which will reduce to a minimum psychosomatic disturbances would greatly enhance the value of a physical fitness program.

DR. MORRIS RASKIN, Detroit: I am from the Health Institute of the United Automobile Workers Union. The UAW-CIO has a recreation department which is developing a physical fitness program. The major difficulty is the method of making the program available to the worker. It is not necessarily true that the worker who does not take advantage of recreational facilities is apathetic. It is difficult for one who works ten to twelve hours a day, on a six to seven day work week, frequently in atmospheres of poor ventilation, suffering symptoms of chest pain, cough or fatigue, to leave his work, travel a number of miles to a point of recreation and then travel home. Therefore, in developing a physical fitness program, recreation facilities should be established in localities convenient to the workers and made available to workers on all shifts. The recreation department has several programs for workers on the midnight shift, with dances in order that their wives may adjust their living habits to the husband's work schedule. These factors are sometimes neglected in the establishment of such programs. The interests and desires of the people are rarely considered in the development and execution of such programs. Other factors also must not be forgotten. The social security factors are important. The worker who is anxious and suffers anxieties because of lack of security is a poor candidate for a physical fitness program. The worker whose housing is inadequate will not be a fit worker, no matter what type of program is developed.

DR. R. B. CRAIN, Rochester, N. Y.: I want to emphasize the old story of the periodic physical examination. In these times of stress and shortage of medical personnel it is not feasible to carry out this program of the annual physical examination, but I hope it will not be too long before that can be done again in many industries. The workers themselves are very anxious to know how they stand physically. It seems to me that any intelligent advice on physical fitness should be predicated on an individual physical examination. Physicians need to be better informed about correction of faulty health habits and poor posture. The physical educators have much to tell us. We have a number of loose ends in our physical examination that need taking up by some one trained to do it.

PHYSICAL FITNESS

ITS EVALUATION AND SIGNIFICANCE

J. ROSWELL GALLAGHER, M.D.
AND
LUCIEN BROUHA, M.D.
ANDOVER, MASS.

It has taken the impetus of war to bring home to us the great importance of physical fitness and to give that subject the attention it deserves: no one can be complacent when one realizes that 1 out of 4 of our 18-19 year old registrants fails to pass his Selective Service examination. But even now physical fitness is too frequently discussed in terms of only one of its various components, and many panaceas and programs are proposed which, although proper in themselves, are no more than single items in a well integrated and complete plan.

In this report three kinds of physical fitness are discussed: first, static or medical fitness, which is con-

TABLE 1.—A Condensation of Tables Published by Rowntree, McGill and Edwards¹ and Gallagher² Which Respectively Indicate the Percentage of Physical Defects Uncovered at the Selective Service Examination of 42,273 18-19 Year Old White Youths and at the Annual Initial Health Examinations of 910 Preparatory School Boys.

Incidence of Defects Causing Rejection Among 18-19 Year Old White Registrants (42,273)		Incidence of Findings Among Preparatory School Boys (910)	
Defect	Per Cent Rejected	Finding	Per Cent
Eye diseases.....	1.9	Vision of 20/40 or less (uncorrected).....	1.9
Defective vision.....	2.6	Hypermetropia (uncorrected).....	7.7
Eyes, all causes.....	4.7	Hearing loss of 20 decibels or more (all tones).....	1.7
Otitis media.....	1.1	Dental caries (far advanced).....	15.1
Deafness.....	0.1	Tonsillectomy advised.....	2.3
Ears, all causes.....	1.6	Rheumatic heart disease.....	0.7
Teeth, all causes.....	0.08	Hernia (inguinal).....	0.3
Nose and throat (all causes).....	0.31	Undescended testes.....	0.5
Tuberculosis.....	0.66	Personality disorder.....	2.3 ⁴
Rheumatic heart disease.....	0.31	Speech defect (stuttering).....	1.6
	1.98	Diabetes.....	0.2
	1.59	Musculoskeletal (miscellaneous).....	0.8
Mental diseases (all).....	0.22	Underweight (extreme)....	5.9
Psychoneurotic disorders.....	1.51		
Musculoskeletal (all).....	2.2		

cerned with the soundness of the organs of the body; second, functional or dynamic fitness, which has to do with the efficiency of the body in strenuous work; and, third, motor skills fitness, which is related to muscle coordination and strength in performing specific activities. A discussion of these three types of fitness is important, not alone for describing methods and results of testing them and indicating which procedures and programs may be of value in improving the level of man's fitness, but also for emphasizing that a many sided attack is essential. Fitness cannot be evaluated by means of a conventional medical examination alone: the latter appraises the quality of the organism at rest, can separate the sick from the healthy and segregate those having organic defects from those without them but does not reveal functional capacity. In short, such an examination does not provide a complete answer to the question of the examinee's condition and does not classify normal, healthy individuals into various groups according to their physical efficiency.

It is, in a way, unfortunate that this report is limited to physical fitness alone, for obviously the estimation,

From the Department of Health, Phillips Academy, Andover, Mass. (Dr. Gallagher). The Grant Study, Hygiene Department, Harvard University (Dr. Brouha).

maintenance and improvement of both the mental hygiene and the intellectual level of the population are of equal importance. The number of emotionally unfit uncovered by the Selective Service, the number of intelligent but untrained men noted during the course of their military careers, and the fact that almost half of those of our troops sent back to civil life are discharged for some neuropsychiatric disorder are clear indications of the magnitude and importance of this side of the fitness problem. Complete programs should be developed, including facilities for the prevention and correction of physical and mental disorders, for the determination of special skills and aptitudes and for appropriate educational opportunities.

MEDICAL FITNESS

Medical fitness, which is estimated by the conventional examination, must be considered first because it is fundamental. Rowntree, McGill and Edwards¹ describe the causes for rejection from military service, and another report² discusses the findings at the annual health examination of preparatory school boys. Each of these reports indicates the desirability of carefully examining members of these age groups and emphasizes the large number of correctible defects to be uncovered among them. The second report also shows that such an examination is far from superfluous even though the majority of the subjects come from economically privileged levels.

In table 1 a brief abstract of certain findings listed in these reports is given. The criteria were not identical, and the percentages should not be compared; both, however, show the desirability of proper, careful examination of these age groups. Such findings make it clear that fitness programs which insist only on exercises and games will fail to decrease the number of rejectees from military service. This decrease will come, first, from the proper control of syphilis, tuberculosis and rheumatic fever; second, by widespread medical examinations leading to the early correction of orthopedic disorders, hernia, nose and throat conditions, dental and visual defects; third, by an increased use of mental hygiene principles, and, fourth, by a proper diet and a better understanding of the fundamental rules of physical hygiene. Emerson³ has demonstrated the value of weight gain during adolescence as an indicator of good health, and the possibility of improving health by attention to diet, observation of sensible health habits and avoidance of excessive tension.

Not merely in times of war are such health examinations essential; this truism is mentioned here because the relation between good health and efficient day by day work is so obvious that it is often disregarded. There is frequently failure to discriminate between a state of being well and a state of optimum health; too often it is felt that the increment between the two is not worth the time and effort involved. The importance of following the medical examination by the correction of any discovered defects cannot be too strongly emphasized: the efficiency of such examination should be judged, not by the percentage of defects found, but by the number of these defects subsequently corrected.

1. Rowntree, L. G.; McGill, K. J., and Edwards, T. I.: Causes of Rejection and the Incidence of Defects Among 18 and 19 Year Old Selective Service Registrants, *J. A. M. A.* **123**: 181-185 (Sept. 25) 1943.
2. Gallagher, J. R.: The Health Examination of Adolescents, *New England J. Med.* **229**: 315-319, 1943.
3. Emerson, W. R. P.: Physical Unfitness in the Preparatory School, *Am. J. Dis. Child.* **44**: 509-523 (Sept.) 1932.

FUNCTIONAL OR DYNAMIC FITNESS

The ability of a medically fit individual to do strenuous work cannot be estimated while he is at rest or performing mild exercise. In order to evaluate his fitness for hard work he must do hard work. For example, as shown in table 2, the similarity between the cardiac response of two individuals to hopping 100 times disappears after strenuous exercise. Resting heart rates before exercise and those taken at three intervals after each boy hopped 100 times are similar, but after a more prolonged and more strenuous exercise the heart rates show considerable difference: R. W.'s heart rate decelerated rapidly, A. C.'s slowly. The more strenuous test demonstrated differences in functional capacity which the milder test failed to disclose. Similar results were found when comparing the performances of 100 young men walking on a treadmill at 3.5 miles per hour on a 8.6 per cent grade for fifteen minutes with their performances when running at 7 miles per hour, grade 8.6 per cent, up to five minutes. Although statistically the relationship between recovery from mild exercise and hard exercise is a positive one in this material with a Pearson coefficient of correlation of 0.53, it is not clinically practicable to predict the capacity for hard exercise from the reaction to a milder exercise.

TABLE 2.—A Comparison of the Heart Rates of Two Individuals Taken First After Hopping 100 Times and Then After Performing a More Strenuous Four Minute Exercise

	Heart Rates Before and After Hopping			
	Sitting	30-60 Seconds	60-90 Seconds	90-120 Seconds
A. C.....	74	80	76	72
R. W.....	72	76	63	68

	Heart Rates Before and After "Step Test"			
	Sitting	60-90 Seconds	120-150 Seconds	180-210 Seconds
A. C.....	72	136	120	112
R. W.....	72	80	76	70

It is seen that in order to test dynamic fitness, which we define as the capacity to perform strenuous exercise and recover from it, the test itself must be strenuous. Whether a treadmill, an ergometer bicycle or the more simple step test is used is not important as long as the exercise requires no special skill, utilizes the large muscle groups and gives the heart and lungs so much work to do that a "steady state" cannot be maintained. From tests involving work of this nature, a "recovery index" can be derived. This index is based on the principle that the rate at which the heart decelerates after strenuous exercise provides a means of estimating dynamic fitness.⁴ That this assumption is true is demonstrated by the improvement of the index from week to week during a period of training, by a reduction of the index after breaking training, under the stress of inadequate diet⁵ or after an acute illness, and by a subsequent gradual rise on resuming exercise or shift to a proper diet.

A simple procedure, the step test, is adequate for reasonably accurate estimation of the recovery index. Slight variations in technic have been devised to make the test suitable for high school boys,⁶ high school

4. Johnson, R. E.; Brouha, L., and Darling, R. C.: A Test of Physical Fitness for Strenuous Exercise, *Rev. canad. de biol.* **1**: 491-503, 1942.
5. Johnson, R. E.; Darling, R. C.; Forbes, W. H.; Brouha, L.; Egana, E., and Graybiel, A.: The Effect of a Diet Deficient in Part of the Vitamin B Complex on Men Doing Manual Labor, *J. Nutrition* **24**: 585-596, 1942.
6. Gallagher, J. R., and Brouha, L.: A Simple Method of Evaluating Fitness in Boys: The Step Test, *Yale J. Biol. & Med.* **15**: 769-779, 1942.

girls,⁷ college men⁸ and college women.⁹ For men the test consists in stepping on and off a platform 20 inches high thirty times a minute for no longer than five minutes, a period shown by experience to be adequate for adults. Younger boys and girls exercise only four minutes on a lower platform. The heart rate is

TABLE 3.—A Comparison of the Initial Heart Rates and Recovery Indexes, Showing the Lack of Relation Between Them

	Initial Rate	Rate 60-90 Seconds	After Exercise (Step Test) 120-150 Seconds	180-210 Seconds	Recovery Index
E. H.	70	146	130	116	61
R. K.	70	104	90	88	85
C. V.	56	130	118	106	68
D. S.	96	51	47	47	83
J. D. (before training)...	70	59	50	50	73
J. D. (after training)....	74	38	38	36	106

counted for thirty seconds one, two and three minutes after exercise has ceased, and the recovery index is calculated by dividing the number of seconds of exercise by the sum of these three heart rates. The recovery index¹ is the

$$\frac{\text{duration of exercise (in seconds)} \times 100}{2 \times \text{sum of pulse counts in recovery}}$$

The higher the score the more fit the individual. Tables have been prepared for the rapid calculation of scores; they also include average indexes for those unable to maintain the exercise for the required period.

It will be noted that, in calculating the recovery index, only the heart rates taken during the recuperation period are used: the initial heart rate, the one prior to exercise, need not be recorded since it does not have a significant relation to an individual's ability to perform strenuous work.¹⁰ For example, as can be seen in table 3, 2 individuals, E. H. and R. K., having an initial heart rate of 70 beats per minute, may well be in very different states of fitness; a subject (C. V.) whose resting pulse is as low as 56 may be in poorer condition and have a lower recovery index than one whose initial heart rate is considerably higher (D. S.); and a subject (J. D.) may improve his condition after training and attain a much higher recovery index without significant change in his initial pulse. The well known effect of apprehension on the heart rate and the consequent difficulty of obtaining a true value for the resting pulse furnish sufficient reason for omitting the initial pulse in testing dynamic fitness. A similar lack of relation has been found between basal pulse rate, systolic or diastolic blood pressure and the capacity to perform strenuous work.¹¹

In the course of studies which led to the development of the recovery index and the step test technic, numerous physiologic data were collected and other indexes were calculated.¹² For example, measurements of oxygen consumption and blood lactate levels are of interest and value but are not always practicable because

of the technical difficulties involved. On the other hand, the recovery index can be obtained easily and is sufficiently accurate for the purposes for which it has been proposed.

The importance of estimating dynamic fitness cannot be overemphasized: the recovery index indicates the individual's present capacity for strenuous work, is useful as a yardstick in measuring his improvement under training, can evaluate the efficiency of any body building or conditioning program¹³ and, in general, helps to answer the question "What condition am I in?" The necessity of improving one's functional capacity is occasionally deprecated, but better than average fitness is desirable, not alone because a rare maximum effort may then be more adequately handled and within a wider margin of safety, but also because the commonplace tasks can be performed with less strain: "qui peut le plus peut le moins." The higher the degree of fitness, the less will any effort displace the individual from his previous physiologic state; consequently the greater will be his reserve for the next job, the quicker his recuperation and the more remote the possibility of excessive fatigue. Therefore tests for estimating fitness should be part of every thorough health examination of young people and should be repeated during the course of a conditioning program in order to determine the reaction to the program.

Chart 1 shows a wide distribution of fitness scores both before and after a training period. There is a great variation in the state of fitness from individual

TABLE 4.—The Distribution of Initial Step Test Scores on a Group of 523 14-18-Year Old Boys, Together with the Percentage of Individuals at Each Score Range Who, After an Eight Week Training Period, Had an Increase or Decrease in the Recovery Index

Distribution of Initial Recovery Indexes	Number of Subjects	Percentage at Each Score Range Who Improved	Average Improvement in Recovery Index	Percentage at Each Score Range Whose Recovery Indexes Dropped	Average Drop in Recovery Index	Percentage Whose Indexes Did Not Change
20-24	0	0	0	0	0	0
25-29	2	100	25.0	0	0	0
30-34	0	0	0	0	0	0
35-39	1	100	20.0	0	0	0
40-44	0	0	0	0	0	0
45-49	2	100	12.5	0	0	0
50-54	13	100	14.7	0	0	0
55-59	61	98.4	9.5	1.6	1.0	0
60-64	110	87.2	8.6	9.1	3.2	3.7
65-69	145	82.1	8.5	13.1	3.0	4.8
70-74	101	71.2	8.4	20.9	4.1	7.3
75-79	55	63.6	6.6	29.1	5.1	7.7
80-84	13	61.5	7.4	30.8	6.0	11.1
85-89	9	55.0	8.0	33.3	9.6	0
90-94	10	50.0	0.0	50.0	0	0
95-99	1	0	0	100.0	29.0	0
100-104						
105-109						
110-114						
115-119						

N = 523

to individual, and, no matter what training is given, these differences persist. When an unselected group is given a typical secondary school training program, results similar to those shown in table 4 are obtained. In this study a high percentage of those who had low initial recovery indexes had improved by the end of the training period, and the average improvement was

7. Gallagher, J. R., and Brouha, L.: A Method of Testing the Physical Fitness of High School Girls, *Rev. canad. de biol.* 2: 395-406, 1943.

8. Brouha, L.; Graybiel A., and Heath, C. W.: The Step Test: A Simple Method of Assessing Physical Fitness for Hard Muscular Work in Adult Man, *Rev. canad. de biol.* 2: 86-92, 1942.

9. Clarke, H. L.: A Functional Physical Fitness Test for College Women, *J. Health & Phys. Educ.* 14: 358-395, 1943.

10. Gallagher, J. R., and Brouha, L.: Absolute Physical Efficiency, *Yale J. Biol. & Med.* 15: 659-670, 1943. Brouha and Heath.¹¹

11. Brouha, L., and Heath, C. W.: Resting Pulse and Blood Pressure Values in Relation to Physical Fitness in Young Men, *New England J. Med.* 228: 473-477, 1943.

12. Johnson, R. E., and Brouha, L.: Pulse Rate, Blood Lactate and Duration of Effort in Relation to Ability to Perform Strenuous Exercise, *Rev. canad. de biol.* 1: 171-178, 1942.

13. Gallagher, J. R., and Brouha, L.: The Evaluation of Athletic Programs by Means of Fitness Tests, *Yale J. Biol. & Med.* 15: 671-677, 1943. Brouha, L.; Fradd, N. W., and Savage, B. M.: Studies in Physical Efficiency of College Students, *Research Quart.*, to be published.

greatest for those whose initial scores were lowest. Conversely, several of those with high initial scores showed a decrease during the training period, and the average decrease was greatest for those whose initial scores were highest. These observations indicate that an average program will most improve the least fit

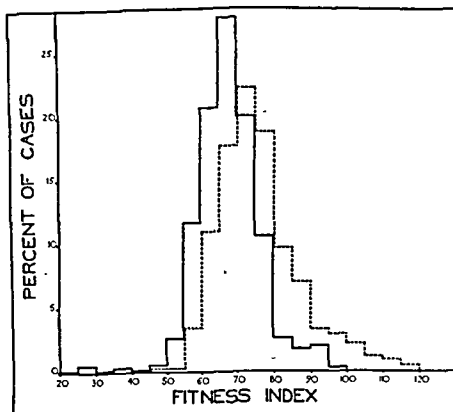


Chart 1.—Distribution of fitness (recovery) indexes of 523 preparatory school boys before and after an eight weeks conditioning period. The solid line represents the initial scores, the broken one those obtained following the training period.

and least benefit the most fit. In order to raise their indexes, those with good initial fitness require a more strenuous program such as is given college oarsmen or schoolboy lacrosse or soccer players. When a group carefully selected to include only those men capable of achieving a high degree of functional fitness is subjected to a strenuous training, all will improve, but not all will improve to the same extent (table 5). Such experiments show that each man undergoing an appropriate training program achieves what is for him a maximum efficiency, related to his physiologic endowment. All individuals, though "medically fit," vary in the quality of their organic constitution and in the level of their potential physiologic efficiency.

The recovery index is not a measure of skill or ability to perform certain specialized activities but is primarily an evaluation of the quality of cardiovascular responses to strenuous exercise. Only when cardiovascular efficiency is a factor in the performance of a given activity should one expect improvement in the one to be accompanied by increased ability in the other.

The recovery index usually deteriorates strikingly during infection; even a common cold can produce definite lowering (chart 2). Compare a runner (J. R.) whose index was determined weekly throughout the training period with a team mate (H. H.) whose training was interrupted by illness but whose physiologic capacities were such that he responded well to training and, week by week, became more efficient, reaching what was his maximum performance under these conditions. A third runner (R. P.) did not have his training interrupted by illness yet failed to respond satisfactorily. This failure of his index to rise significantly during a period of arduous training suggests that continuation might not be beneficial: it may well be that the quality of his cardiovascular system is such that its capacity to improve is limited.

On the basis of such experiments, it may be stated that the value of serial determinations of the recovery index during training cannot be overemphasized.

MOTOR SKILLS FITNESS

The third aspect of physical fitness deals with the individual's ability to perform certain acts requiring strength, coordination and skill. Cureton¹⁴ has recently described several such tests, emphasized the inadequacy of many present physical education and recreation programs and urged that more time and attention be spent in teaching youths to handle their bodies efficiently. If, however, one is merely giving a screening test designed to select the weak, poorly coordinated and unskilful, it is necessary to include only a few motor skills. Vaulting, jumping, climbing and swimming are useful and their proper performance demands a reasonable degree of strength, flexibility and coordination. A simple and easily administered motor skills test, based on these activities, has therefore been devised for high school boys. It consists of a vault over a bar of various heights, a standing vertical jump, a rope or pole climb, a standing broad jump, a swimming test calling for knowledge of four different strokes and the ability to cover 100 yards.¹⁵ "Push ups," "pull ups" and running were not included in the test because they are part of most body building programs.¹⁶

If one was to choose which of the motor skills tests is most important, swimming would undoubtedly be selected. Cureton¹⁴ states that 26.55 per cent of 2,557 freshmen entering the University of Illinois in 1942 could not swim at all, a much higher figure than that reported by Kiphuth,¹⁷ who found that of 4,163 freshmen admitted to Yale from 1936 to 1941 only 1.7 per cent did not know how to swim. In a preparatory school of 700 boys, 1.6 per cent were unable to swim; 3.7 per cent could not swim 100 yards.¹⁵

COMMENT

A body building program is desirable for every healthy individual because it assures adequate daily exercise and provides for the general development of all muscles: it gives supplementary attention to the chest and arms of the runner and soccer player, to

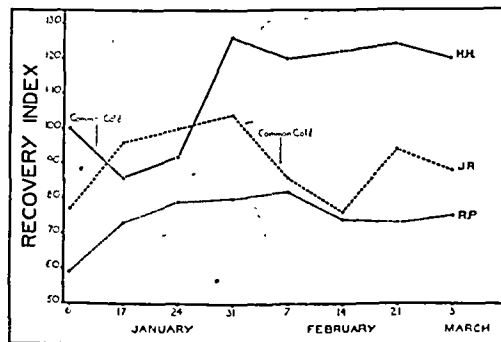


Chart 2.—Changes in the recovery indexes of three athletes at approximately weekly intervals during a short training period. The temporary deterioration of fitness due to a common cold is seen in two of these curves, and the variation in individual response to similar training is evident.

the legs and abdomen of the weight thrower and to the cardiovascular system of all. Well rounded training should recognize these assets of conditioning exercises

14. Cureton, T. K.: The Unfitness of Young Men in Motor Fitness, *J. A. M. A.* 123: 69-74 (Sept. 11) 1943.

15. Johnson, T. J.; Schubert, E. J.; Peck, M. E., and Gallagher, J. R.: The Andover Physical Fitness Testing Program, *Research Quart.* 15: 16-22, 1944.

16. Johnson, T. J.: The Andover Body Building Program, *J. Health & Phys. Educ.* 15: 8-9, 1944. Kiphuth, R. J. H.: How to Be Fit, Yale University Press, 1942. Mass Exercise, Games, Tests, U. S. Naval Institute, Annapolis, 1943.

17. Kiphuth, R. J. H.: Personal communication to the authors.

and also take into consideration the psychologic, recreational and physiologic values of athletics. From our discussion of functional fitness and motor skills it is obvious that a proper physical educational program requires more than calisthenics. Obstacle races, swimming and games such as soccer and lacrosse, which develop endurance and the competitive spirit, are highly desirable. Tennis, squash and handball, which develop coordination, have particular value because they can be continued after school days are over.

Although "a sound mind in a sound body" is a commonplace among educators, some school systems are still reluctant to provide either sufficient time or personnel for the development of adequate physical education programs. The relation between good fitness and efficient academic effort is not always appreciated by the educator, and too often the athletic coach seeks to develop outstanding skill in the few and neglects to improve the all around physical efficiency of many. Often also authorities are timid about strenuous exercise. It is granted that such exercise may be harmful if it is given without knowledge of the individual's medical fitness, and it may also be harmful if not properly graded, gradually increased and carefully supervised. While much can be accomplished from well planned daily exercise, a "thorough workout" once a week will of course result in sore muscles; on the other hand, if the exercise is mild and short, little benefit can be expected. Frequently strenuous exercise is regarded as harmful because an individual was overtired after his initial experience with the exercise he needed: it is to be remembered, however, that fatigue,

from cultivating motor skills would seem obvious. Nevertheless, neither is receiving proper attention, for Rowntree¹⁸ quotes Colonel Bank as saying "Many young men are entering the Army today totally unprepared for military life. It takes weeks to bring them into physical condition necessary for military training. This means weeks of wasted time and effort which could be avoided if every young man now in high school would engage in physical activities." It must, however, be remembered that such activities cannot be beneficial unless the individual has been found medically fit and unless the program is planned to suit his needs. Physical exercise must be carefully supervised and methodically increased as efficiency grows.

GETTING PATIENTS OUT OF BED EARLY IN THE PUERPERIUM

MORRIS L. ROTSTEIN, M.D.

BALTIMORE

The exact medical regimen of the puerperium has varied from century to century and from one social class to another. Obstetricians of old had their patients lie flat on their backs for fifteen or more days before allowing them out of bed. Their great fear was uterine prolapse. Our present day obstetricians are still adhering to this mode of treatment in part, or in whole, with very few variations. With the current shortage of maternity beds at the Sinai Hospital in Baltimore we have increased our maternity bed turnover by resurrecting the custom of allowing patients out of bed early in the puerperium.

Percival Willughby, Gentleman, in his *Observations and Midwifery*, written in the 17th century states "I knew a lady that constantly did keep her bed a fortnight after delivery and Gaines Wolveridge, M.D., a late writer in midwifery, in his book, *Speculum Matricis* advised the women to keep their bed, 5 days at the least, after delivery. For he sayeth, I know 'tis usual for them to rise at the 3 days' end, but this, to be sure, the longer women contain themselves in their bed, the more secure they are from danger, and I know by experience that his sayings in this case be found very true."

Charles White¹ of Manchester, England, 1728-1813, challenged the practice of keeping patients in bed for a prolonged period after childbirth. In his treatise on the Arrest of Puerperal Fever he states "The patient should be allowed up within a few hours after delivery. The sooner the patient gets out of bed, the better, and this should not be deferred beyond the second or third day at the furthest." An opposite opinion was held by Robert Gooch,² who in 1820 was the professor of obstetrics at St. Bartholomew's Hospital in London. Gooch cautioned his obstetric students not to allow puerperal women out of bed before the 21st day. The following is a quotation from his book on midwifery: "For three weeks after delivery, the patient should be kept chiefly in the recumbent position, the consequence

TABLE 5—*Examples of Variations in Physiologic Measurements Before and After Training Twelve Weeks in a Group of Oarsmen*

Subject	Recovery Index		Maximum Pulse During Run		Maximum Lactate, Mg/100 Cc of Blood	
	Before	After	Before	After	Before	After
Pr	65	75	195	195	166	142
Fi	72	78	195	192	133	110
Ma	77	95	200	180	74	68
Ly	77	105	195	180	78	75
O	78	93	195	176	149	90
Br	78	97	196	168	121	95
An	80	93	200	186	122	106
Ch	80	93	193	186	74	74
Wh.	82	112	190	172	108	62
J. ..	83	91	196	180	91	89
La	84	94	190	180	117	77
So	85	98	192	174	130	95
Sn	87	99	204	178	103	89
Mar	87	108	173	170	141	83
Cha	89	100	190	178	77	77
Eu	89	108	196	182	91	59
Er	90	117	189	164	102	73
Ri	92	105	190	170	84	70
Cl	93	112	185	172	112	64
No	96	108	185	172	51	50
Cu	156	181	172	158	68	41

The test exercise in this series of experiments consisted in running for five minutes on a treadmill at a speed of 7 miles per hour and on a grade of 8.6 per cent.

sore muscles and breathlessness after exercise in a normal individual are eliminated by becoming accustomed to that exercise, not by avoiding it. Occasionally failure to make a proper response to an exercise program may come from an undetected pathologic condition, and such unexpected failure should always call for a repeated physical examination, which may reveal a condition precluding benefit from the program or perhaps even presaging harm if it should be continued or intensified.

The desirability of developing and maintaining good dynamic fitness and the other advantages to be derived

18 Rowntree, L. G. *Education, Health and Physical Fitness*, J. Health & Phys. Educ. 14: 370-372 and 388-390, 1943.
From the Obstetrical Service of the Sinai Hospital of Baltimore, Inc.
1. Adams, J. G.: The Manchester School. Charles White (1728-1813) and the Arrest of Puerperal Fever, J. Obst. & Gynaec. Brit Emp 29: 1-20, 1922.
2. Gooch, R.: A Practical Compendium of Midwifery, London, Leeson [and others], 1831.

of setting up soon after delivery with the heavy uterus suspended in the flaccid abdomen will be a prolapsus of this organ."

Allowing patients up out of bed early in the puerperium has not enjoyed widespread adherence in the last several decades, for the public had been educated to think that early rising in the puerperium was prejudicial to health. Until recently, almost all doctors shared this belief without attempting to prove or disprove this point otherwise.

In London during the blitz of 1940-1941 the authorities were fearful of an increased rate of casualties among hospitalized patients. As a result, a great many patients were delivered in the home. However, owing to the absence of proper facilities in their homes, hundreds of patients still had to be delivered in the hospital. These patients were admitted when they were in active labor, delivered, allowed up about a day later and sent home on the second or third day post partum. Reports from abroad showed that no ill effects resulted from this mode of treatment and, in addition, more patients could be accommodated per bed.

Vara³ states that in the Women's Clinic in Helsingfors 4,447 women were allowed out of bed very soon after delivery. His findings were that the incidence of thrombosis was definitely less in these women than in the women who were permitted to remain in bed for the usual length of time after delivery or operation. Likewise there was an improvement in function of the bowels and bladder, and the period of convalescence was shortened.

The obstetric group of the Alameda County Hospitals in Oakland, Calif.,⁴ increased their bed turnover by allowing patients to be sent home early in their puerperium if there were no postpartum complications. In their series of 3,400 cases about one third were discharged on their fourth day, 30 per cent between their fourth and eighth day and about 35 per cent after the eighth day. Their criteria for discharge were no postpartum complications and adequate care in the home. After a careful study they found that no complications occurred that were directly due to early discharge of the patient from the hospital.

Because of the greatly increased number of patients in the obstetric clinic at the Sinai Hospital of Baltimore, with the resultant bed shortage, we decided to allow a series of patients up early in the puerperium to increase our bed turnover and note the various effects if any. One hundred and fifty patients who delivered vaginally were chosen at random and allowed up on their third or fourth day after delivery. Parity and type of delivery were not taken into consideration. However, no patient with toxemia, heart disease or other complication of pregnancy was included in this group. The group was made up of 65 primiparas and 85 multiparas, totaling 150, with 51 spontaneous, 85 low forceps, 8 mid forceps and 6 breech deliveries, with 117 episiotomies.

MODE OF TREATMENT

In this series no ill effects were noted. The patients when allowed up felt well and were able to walk about and take care of both themselves and some of the inbed patients, thus greatly assisting a war depleted nursing staff. When allowed home, which varied from the sixth to the eighth postpartum day, they felt

strong and were better equipped to go about their duties of taking care of themselves and their newborn infants. The postpartum routine of these patients was as follows:

ROUTINE

1. Immediately after delivery the patient was encouraged to move about in bed.
2. Ergonovine hydracrylate $\frac{1}{320}$ grain (0.2 mg.) was given to each patient every four hours for six doses.
3. The patient was catheterized every ten hours if unable to void, but no antiseptic solutions were instilled.
4. Routine perineal care was instituted, consisting of flushing the perineum with sterile water after micturition and defecation.
5. The patient was put on a full diet immediately.
6. Liquid petrolatum was given on the night of the third day.
7. Starting on the third day, each patient was made to lie on her abdomen for one hour.
8. A soap suds enema was given on the fourth morning.
9. On the morning of the third or fourth day, if the four hourly oral temperature had not been above 99.6 F. for the preceding twenty-four hours, the patient was allowed up in the chair for two hours and again for two hours in the afternoon. Forty-five patients, or 30 per cent, were first allowed up on the third postpartum day and 105, or 70 per cent, on the fourth postpartum day.
10. On the fifth postpartum morning each patient was allowed to walk about as she desired, and she continued to do so until the day of discharge from the hospital.
11. Starting on the fifth postpartum day each patient was put in the knee-chest position for twenty minutes. This procedure was carried out each day until discharge and prescribed for two weeks at home following discharge.

The only criterion used for allowing patients to be up on their third and fourth day post partum was an oral four hourly temperature of not over 99.6 F. for the preceding twenty-four hours. If their temperature was above 99.6 F. they were kept in bed until this requirement had been fulfilled.

It was of great interest to see these patients getting about more and more each day, and on their day of discharge they were able to get about as well as before delivery. Under this routine the patients did not show the usual postpartum weakness and were able to help the inbed patients and spend their spare time packing pads and various sundries for the maternity department.

RESULTS

Lochia.—Normally the lochia consists of blood stained fluid for the first three or four days, after which it becomes paler with each succeeding day until the twelfth or fourteenth day, when it is almost whitish.^{4a} In this series the lochia was sanguineous on the third postpartum day and tended to become serosanguineous by the sixth postpartum day. On the day of discharge, which varied from the sixth to the eighth day, the lochia in 60 per cent of the cases was almost serous with very little blood in it. Being up on the third or fourth postpartum day made the lochia a little more profuse, which would be expected, because by standing or sitting upright the flow of lochia is helped by gravity. This increased flow lasted for twenty-four to forty-eight hours and then rapidly subsided, and by the sixth postpartum day the lochial discharge was quite scanty and serous.

The Uterus.—At delivery the uterus is about 2 finger-breadths below the umbilicus and from this level involutes down to below the symphysis in about twelve to fifteen days. In this series, with the regimen as outlined, involution was notably accelerated. It was found that the uterus involuted from its original posi-

3. Vara, P.: Beobachtungen über das "Frühaufstehen" nach gynäkologischen Operationen bzw. Entbindungen, Acta obst. et gynec. Scandinav. 21: 168-179, 1941.

4. Black, B. W.: Do Normal Maternity Cases Require Ten Days in Hospital? Mod. Hosp. 60: 52-53 (Feb.) 1943.

4a. Schumann, E. A.: Textbook of Obstetrics, Philadelphia, W. B. Saunders Company, 1936.

tion immediately after delivery to half way between the umbilicus and the symphysis by the end of the fourth day. By the end of the sixth day the fundus was about 2 fingerbreadths above the symphysis and at the end of the eighth day at the level of the symphysis.

Stander⁵ states that at the sixth week postpartum examination 41 per cent of patients examined have retroversions. In this series, uterine retroversions were remarkably decreased. We considered the midposition of the uterus as zero and every position posterior to the midposition as a retroversion. Of the 150 cases examined at the sixth week post partum, and some were examined at a more remote date, 33, or 22 per cent, showed a retroversion and in 117, or 78 per cent, the uterus was in good position.

Bleeding.—As mentioned earlier, the initial bleeding was more profuse than usual on the patient's first day out of bed. Apart from this initial bleeding, no abnormal flow was noted. However, 3 cases of postpartum bleeding were encountered after the patient's discharge from the hospital. In 2 the bleeding occurred during the third week post partum. One responded very well to ergonovine therapy, while the other required dilation and curettage. The curettings showed some retained secundines. The third patient had profuse vaginal bleeding during the seventh week post partum which responded to ergonovine therapy.

Uterine Prolapse.—During pregnancy the uterus is supported by its ligaments, fascia, pelvic floor and abdominal wall in part. Following delivery, all these supports are lax and the possibility of uterine prolapse was regarded with grave concern when this series was started. However, getting patients out of bed on the third and fourth day of the puerperium did not produce prolapse of the uterus in any of the 150 patients. All were examined at the sixth week postpartum clinic and some at other periods more remote from the birth of the baby, and in none of these was uterine prolapse found. One of these patients has been subsequently admitted to the clinic with her third pregnancy, and on pelvic examination she was found to be approximately eight weeks pregnant. Her uterus at the time of examination showed no signs of prolapse of any degree.

Effect on Episiotomies.—One hundred and seventeen episiotomies were done in this series. They were either of the midline or mediolateral variety and chromic O catgut was used for the repair. Episiotomies were sutured in the usual manner, and 38 per cent of these were done by junior interns. Early rising post partum seemed to have no adverse effect on these episiotomy wounds. In pursuance of the thesis of getting patients out of bed on the third or fourth day of the puerperium, it was interesting to note that the patients with episiotomies were more comfortable when up and about than when lying in bed. They had a little discomfort on sitting up for the first time, but by the fifth or sixth postpartum day complaints regarding the perineal wound were few indeed. Two of the repairs showed skin separation. The remaining 115 healed by primary intention. At the time of the sixth week postpartum examination, all the episiotomy scars were well healed.

Morbidity.—This was not increased by allowing patients to get up early. In this series of 150, 9 patients had a morbid puerperium, giving a rate of 6 per cent,

which is well below the average morbidity rate of service cases (the Sinai Hospital morbidity is 7.5 per cent). Five of the elevations of temperature were due to urinary tract infections, urine cultures being positive for *Escherichia coli*. Three were due to a low grade endometritis and 1 to an upper respiratory infection. No cases of thrombophlebitis occurred in the series.

CONCLUSIONS

One hundred and fifty patients were allowed up on the third or fourth day post partum. The patients when allowed to get out of bed early feel much stronger and are better equipped to carry on their routine duties at home than those kept in bed the usual ten or twelve days. Involution of the uterus was accelerated and uterine prolapse was not encountered. Morbidity was not increased and the healing of episiotomy wounds was not affected by early rise post partum. No cases of thrombophlebitis occurred, and early postpartum activity lessens the hazard of such a complication occurring. It gives us a means whereby we can increase our turnover per bed in the maternity service.

THE EFFECT OF DIGITALIS ON THE CLOTTING MECHANISM

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It has always been a source of speculation why patients whose auricles have fibrillated for many years suddenly begin to throw emboli into the circulation. There must be some other factor than the presence of stasis. Stasis may exist indefinitely without thrombus formation, and there is no reason why stasis of itself should favor thrombus formation. It is known that superimposed infection is one factor in the production of multiple emboli. However, no attention has been paid in the past to a sudden change in the coagulation system of the blood, which in the presence of auricular stasis may lead to the formation of fresh thrombi. Some of these patients have received digitalis. It is our purpose in this communication to present data on the effect of digitalis on the clotting mechanism; animal experiments were employed to confirm the impressions gained by clinical observations.

While these studies were under way, two communications appeared which furnished experimental support to our contention that digitalis may favor thrombosis Macht,¹ in a paper read before the June 1942 meeting of the American Medical Association, showed that digitalis shortened coagulation time both in-vitro and in the experimental animal. He also pointed out that heparinized animals were more resistant to digitalis poisoning than control ones. He concluded that digitaloid drugs had thromboplastic properties and thus antagonized heparin.

On a small but well controlled series of rabbits, Werch² found that when digifolin was given intra-

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1. Macht, D. I.: Experimental Studies on Heparin and Its Influence on Toxicity of Digitaloids, Congo Red, Cobra Venom and Other Drugs. *Ann. Int. Med.* 18: 772, 1943.

2. Werch, S. C.: Reduction of the Coagulation Time of Rabbit's Blood by Digitalis. *Quart. Bull. Northwestern Univ. M. School* 17: 57, 1943.

venously to the rabbit in comparatively large amounts it caused a significant decrease in the coagulation time of the blood.

In a previous communication, one of us³ described a simple test of the clotting mechanism which consists of serial determinations of capillary coagulation time after the injection of 10 mg. of heparin. While the normal response remains quite constant in the same individuals, a number of factors have been and are being studied which inhibit or facilitate the response to heparin. It has been our experience that such a heparin tolerance is far more sensitive than single determinations of coagulation time and also more readily available for clinical use than the determination of prothrombin levels. In this study, while prothrombin levels were frequently determined, the response to heparin was used to observe the effect of digitalis on coagulation. To control the effect of dicumarol, prothrombin levels were determined by Smith's bedside test.

In some earlier work on dogs which had previously been vagectomized, it was observed that the usual dose of heparin did not prevent clotting and that the blood was kept from clotting only with much larger doses than were used in the nonvagectomized dogs. Even twice the usual dosage did not always prevent clotting in the cannulas. This neurogenic factor has received consideration in another communication.⁴

CLINICAL OBSERVATIONS

We first wish to present 4 case histories selected from a larger number which have left an impression on our minds. These histories are, of course, not conclusive but seemed suggestive enough to warrant further clinical and experimental investigations.

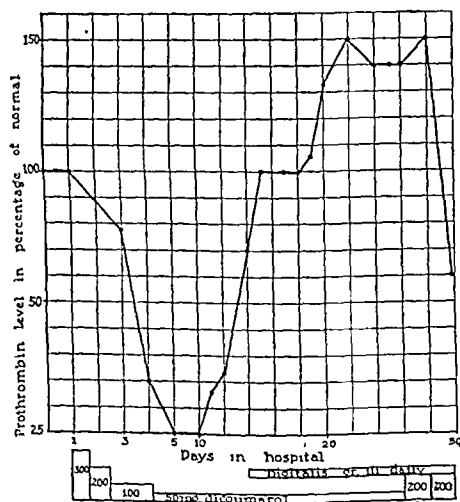


Chart 1 (case 1).—Prothrombin levels. The customary 600 mg. of dicumarol administered in diminishing dosage during the first three days resulted in a definite lowering of the prothrombin levels to 25 per cent of normal on the 5th day. A day previously the dose of dicumarol was cut to 50 mg. a day, which ordinarily will suffice to maintain the level between 70 and 80 per cent of normal. It has never been seen in our experience with this drug to permit a rise above 100 per cent of normal. This happened, however, coincidentally with the administration of 3 grains of digitalis daily; only another 400 mg. of dicumarol was capable of making an impression on the level of prothrombin.

CASE 1.—*History*.—Ruth T. S., aged 46, a housewife, was admitted to St. Luke's Hospital on June 10, 1941, thirty hours after a sudden occlusion of the left femoral artery. There was a previous history of rheumatic fever in childhood followed

by rheumatic mitral disease. The heart condition caused no symptoms until an auricular fibrillation developed. This did not return to normal with quinidine. The patient was placed on digitalis and was instructed in regard to its use. She regulated the dosage herself, varying this as indicated by the pulse rate and clinical symptoms. She did this successfully for three years, reporting occasionally for observation. She carried on her normal activities until June 1941 without symptoms. At that time she undertook an extensive trip which entailed a great deal of additional physical exertion. She became much fatigued and experienced some increased shortness of breath. To overcome this she increased her daily doses of digitalis. In a week severe pain in the left leg developed which necessitated her immediate return and her entrance into the hospital.

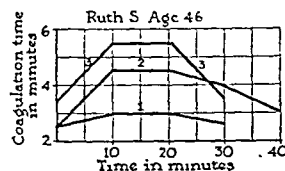
Examination.—On entrance the left lower extremity was cold and pulseless below the knee. The femoral artery was patent at the groin. A heat cradle was applied to the abdomen. Paravertebral block was done with 95 per cent alcohol to the first, second and third lumbar vertebrae on the left. This warmed up the foot, but the toes remained cold. Papaverine $\frac{1}{2}$ grain (0.032 Gm.) was given intravenously twice a day. She was discharged greatly improved. The digitalis dosage had been restored to the previous low maintenance level. She returned to her country home again with instructions in regard to regulating the dosage according to her needs.

Course.—The next admission occurred on July 7, 1941, when she experienced a hemiparesis after a slight increase in dosage of digitalis. Up until the time of the increased dosage she had been getting $1\frac{1}{2}$ grains (0.1 Gm.) of digitalis daily, together with 100 mg. of dicumarol, which failed to raise the coagulation time as expected (chart 1). Interestingly enough, at the onset of the hemiparesis the pain disappeared in the left lower extremity, in which she had experienced considerable ischemic pain from the previous embolus (chart 2).

CASE 2.—*History*.—Lilly M., aged 45, a housewife, entered St. Luke's Hospital on July 14, 1941 complaining of sudden excruciating pain in both legs, which had started five days previously in Greeley, Colo., at the altitude of 4,600 feet. This patient also had a rheumatic fever in childhood with a resulting mitral lesion and an auricular fibrillation. As in case 1, she had been taught how to use digitalis herself. She did this successfully over a period of years, except for a cerebral-vascular lesion seven years previous to entrance. At that time this was not considered to be connected with the digitalis dosage. Full recovery did not occur and there was some consequent disability. In spite of previous instructions in regard to altitude, she went on a trip to the Colorado mountains, where she experienced dyspnea even when at rest and peripheral edema developed. To overcome these symptoms she increased her digitalis dosage until a thrombosis developed, when digitalis was discontinued.

Examination.—On entrance the patient was in agonizing pain. There was irregularity of the pulse. Auricular fibrillation was present, with a rate of 126 at the apex and 110 at the wrist. The right leg was gangrenous to 3 inches below the knee; the left leg was cold, pale; the sole of the foot showed bluish discoloration. No pulse was palpable in either femoral artery. The diagnosis of old rheumatic heart disease with mitral stenosis and auricular fibrillation, and saddle-embolus of the aorta was made. A right midhigh amputation was done within twenty-four hours.

Course.—In spite of paravertebral injections, heparin and intermittent venous hyperemia, gangrene progressed on the left side so that a midhigh guillotined amputation had to be done on March 14, 1941, under sodium pentothal anesthesia. On Aug. 20, 1941 paraumbilical pain and vomiting occurred. Mesenteric embolism was suspected. The stump healed by



1 July 1941, after cerebral embolus
2 June 1942, no emboli since July 1941
3 February 1943, no more emboli

Chart 2 (case 1).—Three heparin tolerance curves, showing an improved clotting mechanism since the cerebral-vascular accident. The third curve shows a normal pattern, whereas the second is considered to be at the lower limit of normal.

3. de Takats, G.: Heparin Tolerance: A Test of the Clotting Mechanism, *Surg., Gynec. & Obst.* 77: 31 (July) 1943.

4. de Takats, G.: The Nervous Control of the Clotting Mechanism, *Arch. Surg.* 48: 105 (Feb) 1944.

primary intention. From August 20 on she had repeated attacks of convulsions. On September 19, with gradually failing heart, she died.

Autopsy.—This revealed chronic rheumatic heart disease, mitral stenosis, mural thrombus of the right auricular appendage, multiple infarcts of the lungs, spleen, left kidney and mesentery, saddle embolus to the aorta and focal softening of the cortex of the frontal lobe.

CASE 3.—History.—Margaret M., aged 53, a schoolteacher, entered St. Luke's Hospital on Dec. 7, 1941, three hours after the onset of motor and sensory paralysis followed by severe pain in both lower extremities. There was a history of rheumatic

Convalescence was uneventful. The left leg and foot became warm and pink, but the pedal pulses never reappeared. She was discharged two weeks after operation with well restored movement and sensation in both lower extremities.

Four months later an embolus occurred to the right femoral artery, and seven months later a saddle embolus of the aorta was diagnosed. Right femoral embolectomy was done during the second admission and another left femoral embolectomy was done during the third admission. While the second embolectomy was successful, the saddle embolus of the aorta put an irreversible strain on the previously crippled circulation and she lost both legs above the knee.

Autopsy.—The diagnosis of mitral heart disease, embolus to the bifurcation of the aorta and cerebral emboli was confirmed.

CASE 4.—History.—Leroy M., aged 42, an engineer, entered St. Luke's Hospital on May 16, 1942 with a cold, cyanotic, pregangrenous left leg. For the past six months there was pain on walking in both calves. A month before entrance he had suffered an acute coronary occlusion; he got out of bed against his doctor's advice on the second week and went back to work. Approximately three weeks after the onset of chest pain his left leg became numb and pulseless. Five days prior to the onset of the pain in the left leg he had begun to take 3 grains of digitalis daily because of a "rapid heart." The acute vascular occlusion in the leg was treated at home for ten days before entrance.

Examination.—On entrance the left femoral artery was pulseless at the groin; the entire extremity was mottled, purplish blue to 3 inches above the knee. The heart was enlarged

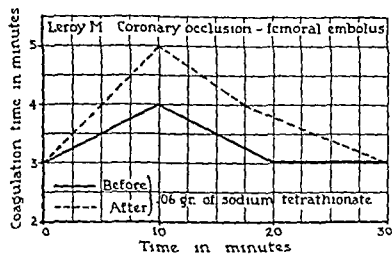


Chart 3 (case 4).—Heparin tolerance. The second curve was obtained after ten days, the patient receiving a daily injection of 0.6 Gm. of sodium tetrathionate.

fever at the age of 14 and again at 17. At the age of 21 "enlargement of the heart" was diagnosed and treated with digitalis and prolonged rest. Tonsillectomy was done at the age of 21. Hysterectomy was performed at the age of 37 for fibroids. Gastric hemorrhage occurred at the age of 39, originating from duodenal ulcer. Intermittent attacks of fatigue and ankle edema were treated with digitalis and rest; the exact dosage of digitalis was uncertain and irregular. Severe upper abdominal cramps occurred in the spring of 1941, diagnosed as gallbladder colic and verified by visualization. From Dec. 1 to Dec. 4, 1941 she increased the maintenance dose of digitalis to 3 grains (0.2 Gm.) because of extreme tiredness. On December 4 she developed severe abdominal pain, which was treated with morphine; this was followed by numbness and paresthesia in both lower extremities and a transient attack of blindness; on December 7 at 10 a. m. an embolism to the left femoral artery was diagnosed by Dr. Walter F. Hoepfner. Digitalis was given up to three hours before entrance.

Examination.—The patient was in extreme pain. The heart was enlarged to the left, with a mitral configuration. The auricles were fibrillating, with an apical rate of 150. The urine contained 1 to 10 red cells in several specimens. The left leg and foot were paralyzed, cold and pulseless. The right foot was pulseless, cold and numb but not paralyzed. The left femoral artery was pulseless at the groin; the right femoral artery was patent. Pedal pulses were absent on both sides. A diagnosis of left iliofemoral embolus was made; while intravenous papaverine and paravertebral block lessened the pain, the color and temperature of the extremity did not improve.

Operation and Result.—Six hours after the onset of symptoms, with retroperitoneal massage a large soft red thrombus was delivered through an arteriotomy of the left femoral. Good

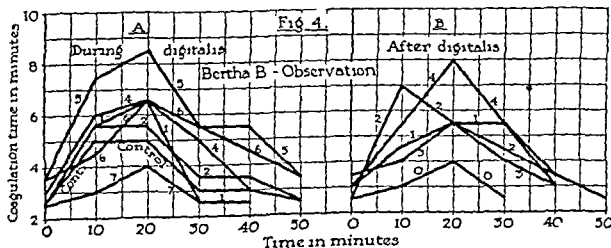


Chart 4.—Heparin tolerance of Bertha B., a patient with no known cardiovascular disease. A, heparin tolerance was determined before and almost every day after the administration of 3 grains of digitalis and up to the 5th day the response to heparin given daily. Note that up to the 5th day the response to heparin increased, possibly because of parasympathetic stimulation; on the 6th day, however, strong resistance to heparin was encountered; the figures indicate days after the administration of heparin was stopped; the curves promptly show increased sensitivity, actually a rebound as digitalis is being slowly excreted.

flow of blood was established from the proximal and distal stumps. Heparin was started four hours after operation. Digitalis was stopped temporarily.

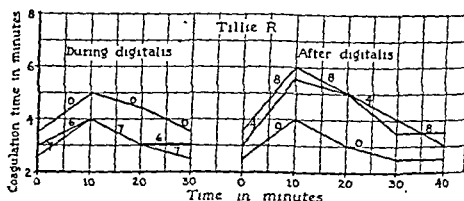


Chart 5.—Heparin tolerance of Tillie R. For the dosage of digitalis, see text. On the 6th and 7th days the curves become much flatter; again after the drug was stopped there appears a rebound.

to the left, the pulse rate was 120 and intermittently irregular, and the blood pressure was 120/82. There was a pericardial rub. The electrocardiogram showed a partial heart block with nonconducted beats, sagging ST segment in leads I-4, low QRS group in all leads and low T wave in all leads.

Operation and Result.—Two days after entrance, with the diagnosis of iliofemoral embolus of ten days' duration following a myocardial infarct, with the patient under spinal anesthesia and at the level of positive histamine flares, a circular amputation was done 6 inches below the groin. The artery was empty and nonsclerotic at this level. The vein contained a soft friable clot, which was aspirated. The stump was completely closed, and heparinization was begun four hours after operation. The patient had a rather stormy course marked by fever, restlessness and delirium. A pulmonary infarct was suspected but not proved. A cerebral embolus may have been responsible for the mental symptoms. The patient left the hospital in good condition on the twenty-second day. He died a year later, at home, of another coronary occlusion.

Studies of Clotting Mechanism.—Two heparin curves are available, one on entrance and one after a course of sodium tetrathionate injections. This drug corrected the initial heparin resistance (chart 3).

These cases are merely illustrative of a number of clinical histories in our files. There are obviously other factors operating in many of these cases and certainly we cannot say that digitalis alone was responsible for the formation of thrombi and emboli. Thus in case 4 the myocardial infarct alone is frequently responsible for the mobilization of the clot, but it is significant that this occurred five days after daily doses of 3 grains of

digitalis were begun. However, these case histories stimulated us to proceed to more clearcut clinical and experimental observations on the subject.

Thus we placed Bertha B., aged 55, who entered St. Luke's Hospital for observation, on 3 grains of digitalis, which was maintained for six days. Heparin tolerance

was determined daily before and daily after the onset of medication. After the seventh day the drug was stopped and the heparin tolerance was determined for another four days. On the left side of the graph (chart 4) is seen the control curve and subsequent curves which show an increased reactivity to heparin up to the fifth day, on which day the patient showed a characteristic curve for a hyperreactor.³ On the sixth day the curve flattened somewhat, whereas on the seventh pronounced resistance to heparin was encountered. This same tolerance curve is shown again on the right as a zero curve. The tolerance rose very fast, on the fourth day exhibiting again a sensitivity to heparin, possibly due to the parasympatheticomimetic action of digitalis.

In the case of Tillie R., who was placed on 3 grains of digitalis for one day, followed by daily doses of $1\frac{1}{2}$ grains (0.1 Gm.), the curves became flat on the 6th and 7th days (chart 5). On the 7th day the drug was stopped, and again we observe the rebound to heparin sensitivity between the 4th and 8th days after digitalis was discontinued.

Jesse J., aged 39, with rheumatic heart disease, was admitted to the hospital with digitalis poisoning; digitalis was stopped on entrance. In chart 6, 0 represents the day of entrance. The greatest resistance to heparin was encountered on the 2d day, at which time heparin failed to raise the capillary coagulation time at all. Then the curves improved and on the 7th day one encounters again a normal curve.

To 2 patients, 6 grains (0.4 Gm.) of digifolin was given intravenously, the tolerance curves being determined before and one and one-half hours after the administration of the drug (chart 7). Both curves are normal before the drug was given. In the case of Patrick M. the curve became entirely flat after digitalis; in the second case the response was subnormal, but the change still quite noticeable. There were no clinical symptoms of any note, certainly no vomiting or diuresis.

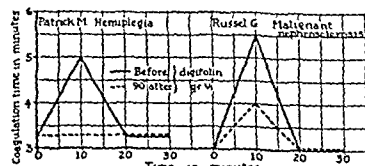


Chart 7.—Tolerance curves before and after a single intravenous dose of digitalis. The total dose of the drug is small; dehydration can be excluded in these experiments. The effect of digitalis in increasing the clotting factors is striking in both experiments.

conditioned to the heparin tolerance curves, which were determined at frequent intervals. The dogs were finally brought into a basal state, where they jumped on the table and were absolutely quiet during the serial determinations of coagulation time. From 0.2 to 0.1 mg. of heparin per kilogram of body weight was injected intravenously and capillary coagulation

times were determined before and ten, twenty and thirty minutes after the injection of heparin. The shape of the curves (chart 8, top column) was very much like the ones obtained in the human being. Only slight daily variations were encountered. Homer received 3 cat units daily from May 28 to June 8, 2 cat units from June 8 to June 21 and 3 cat units from June 21 to July 2. It will be noted that the heparin response promptly decreased after the administration of digitalis and together with the weight loss. During the last few days of the dog's life the curve flattened out completely. The dog's weight dropped from 11.5 Kg. to 7.75 Kg. at death.

In the case of Whitie, after six tolerance curves with 0.1 mg. of heparin per kilogram of body weight 1 cat unit daily was sufficient to diminish the response to heparin; in fact, on March 20 the response to heparin disappeared entirely. This dog was given $1\frac{1}{2}$ cat units of digitalis for one month and then again 1 cat unit for nine days. Comparing the curves in the top column with those in the bottom, the decreased reactivity to heparin is striking (chart 9).

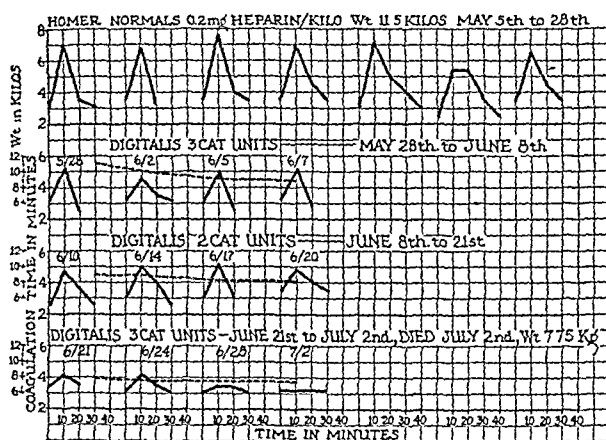


Chart 8.—The effect of digitalis on the heparin tolerance of a normal dog. Curves were run almost daily, but only a few of them are shown. The heparin response promptly diminished after administration of digitalis was begun. The top row contains the control curves; the bottom row shows a complete heparin resistance. The animal died on July 2. Digitalis effect was obvious after the first 15 cat units.

In the case of Oscar, 3 cat units from May 28 to June 9, 1943 followed by 2 cat units from June 10 to June 12 resulted in a complete abolition of the response to heparin. The dog's weight dropped from 9.7 Kg. to 7.4 Kg. in twelve days, at which time, on June 9, 1943, heparin was ineffective in the dose employed (chart 10). In the next graph (chart 11) after seven tolerance curves 2 cat units were given daily from March 23 to April 20. The effect of this medication on the curves is unmistakable. Digitalis was discontinued and together with the weight curve the curves rose until a normal response was obtained. Next the dog was again placed on 2 cat units and later on 1 cat unit of digitalis, but simultaneously 0.1 Gm. of sodium tetrathionate was given intravenously. This medication seemed to afford some but not complete protection against the thromboplastic property of digitalis. On June 21 and June 24 the curves were quite flat after the ingestion of 42 cat units. However, with the daily dose of 1 cat unit the sulfur compound seemed to cope better.

In the case of Blackie (chart 12) we again managed to develop a striking resistance to heparin after not more than twelve days of a total of 24 cat units. Again after discontinuing digitalis the heparin tolerance returned to normal. On May 3, thirteen days after the drug had

been discontinued, the heparin curve was normal. Digitalis was started again, now together with sodium tetrathionate in daily doses of 2 cat units. As in the previous graph, the sulfur compound did not sufficiently protect the dog against 2 cat units daily, but when 1 cat

For practical purposes it seems obvious that, pushed beyond a certain point, it definitely favors thrombosis and embolism. It would seem desirable to watch the clotting mechanism from time to time in patients who require digitalis, and particularly in those whose auricles fibrillate, since here the factor of auricular stasis greatly adds to the hazard of thrombosis.

Elsewhere one of us⁵ has studied the effect of sulfur compounds on the clotting mechanism. It was found that intravenously administered sodium tetrathionate invariably increased heparin action, but no drug was found that could be given orally for the same purpose. In our animal experiments, sodium tetrathionate seemed to prevent the action of digitalis on heparin tolerance. This drug has proved to be very useful in controlling the activity of Buerger's disease and may possibly be used after any type of thromboembolic phenomena to decrease the incidence of recurrence.

The action of small doses of digitalis, when the drug is accumulating or being slowly eliminated from the body, is equally interesting. During such a phase the heparin tolerance is increased; patients show a sensitivity to heparin. Since the parasympathetic drugs

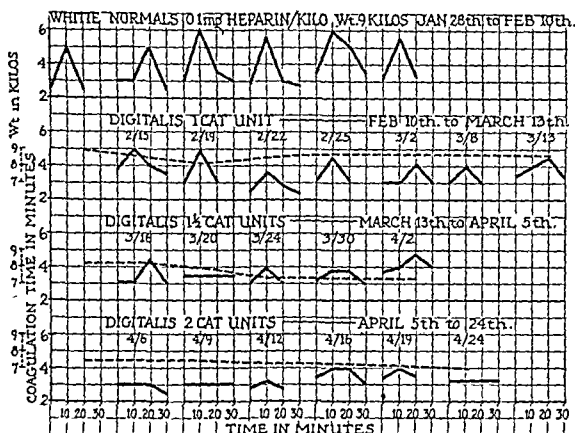


Chart 9.—The top curve represents control curves; the heparin tolerance curves flatten out very shortly after digitalis is administered. Compare the first row of curves with those of the third and fourth rows. Heparin is inactivated during digitalization.

unit was employed the tolerance curves returned to normal.

The animal experiments clearly indicate that the action of heparin is counteracted by digitalis and that by stopping the drug the reaction of the animal to heparin returns to normal. The graphs also show that sodium tetrathionate, a sulfur-containing compound, is capable of elevating such flattened curves. The effect of sulfur compounds on the clotting mechanism has been the subject of another communication⁵ and here we just wish to emphasize its favorable effect on the increased clotting tendency of dogs poisoned with digitalis.

COMMENT

While the case histories presented are only suggestive, the additional clinical observations and the animal experiments leave no doubt that digitalis affects the clotting mechanism. The fact that heparin is less effective

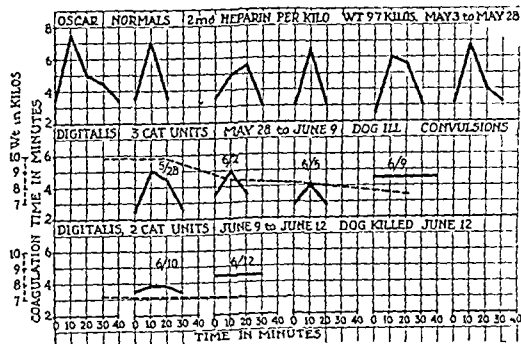


Chart 10.—A normal heparin tolerance is converted to a complete resistance to heparin. Note heparin curves on 6/9, 6/10 and 6/12.

in the presence of digitalis action must mean that somewhere in the coagulation system digitalis opposes heparin. We have no data as to the mechanism of this action. Digitalis may have thromboplastic properties; it may mobilize prothrombin from the liver or even increase thrombin or fibrinogen. As a poison it may interfere with the oxygen-carrying power of the blood.

5. de Takats, G.: The Effect of Sulfur Compounds on the Clotting Mechanism, *Surgery* 14: 661, 1943.

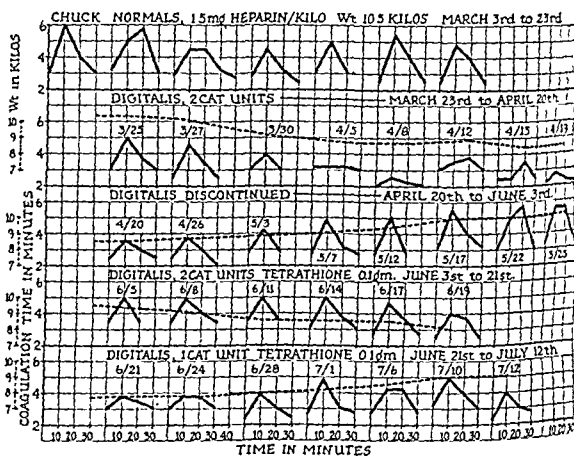


Chart 11.—This graph illustrates the effect of digitalis administration and its withdrawal on heparin tolerance. When digitalis was discontinued the tolerance curves returned to normal. Sodium tetrathionate effectively counteracted the action of 1 cat unit of digitalis; 2 cat units, however, flattened the curves in spite of sodium tetrathionate given daily. This dose of tetrathionate (0.1 Gm.) should probably be increased.

mecholy and neostigmine have such action⁴ it may be that this is an expression of the affinity of digitalis to the cholinergic nervous system. Such small stimulating doses may benefit the coagulation system of the patient.

Digitalis opposes not only the action of heparin but that of the other frequently used anticoagulant dicumarol. This is of practical significance, since doses of dicumarol that produce satisfactory levels of prothrombin are unable to do so during the administration of digitalis or another digitaloid, uroginin. This is illustrated in chart 13 in a patient whom one of us saw with a femoral embolus in the presence of a rapid auricular fibrillation. We are indebted to Dr. George W. Parker of Peoria for the data shown in this graph. It will be noted that to the customary dose of dicumarol, namely 300 mg. the first day, 200 mg. the second day and 100 mg. the third day the prothrombin level responded with alacrity. When the prothrombin level fell to 35 per cent of normal a maintenance dose of 50 mg. a day was prescribed; this failed to hold the level. On September 25 1 unit and on the 20th 2 units of digitalis were given. It was necessary now to give 100 mg. of dicumarol daily to obtain another drop of the prothrombin level, but

again 50 mg. would not hold it. Finally a third time 100 mg. was administered, which again resulted in a drop, although only to 78 per cent; but when urginin was started the prothrombin level failed to drop, although a total of 1,300 mg. of dicumarol was given in thirteen days. A month previously the same patient

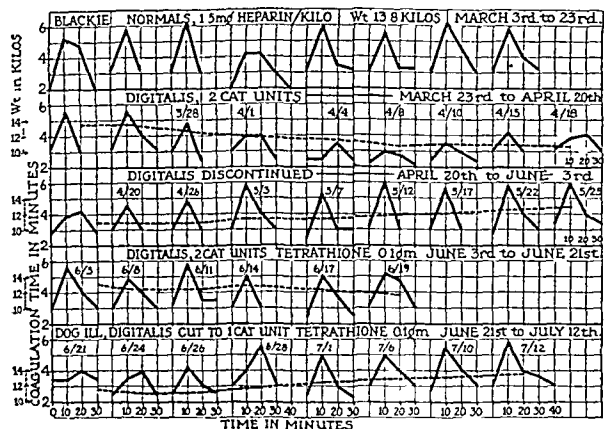


Chart 12.—Top row shows normal control curves. Digitalis flattens out the curves, but after its withdrawal the curves become normal. Sodium tetrathionate again fails to protect the animal from 2 cat units a day but is effective against 1 unit. Undoubtedly the dose of sodium tetrathionate was too small, since the dose in min is six times as great and digitalis was given in doses given to man.

responded to the same total dose with a drop of 35 per cent of normal. This dicumarol resistance cannot be due to any other change in the patient's vascular status, since diet, fluid intake and clinical symptoms were identical.

SUMMARY

Clinical observations, clinical studies and animal experiments indicate that digitalis favors the tendency to thrombosis. This is especially significant in patients in whom other factors, such as stasis or infection, are already operating. With the help of a simple test, which can be carried out in a small hospital or in the home, one can watch for such an effect of digitalis. Auricular and ventricular thrombi and subsequent emboli have been observed in digitalized patients. Outside of the

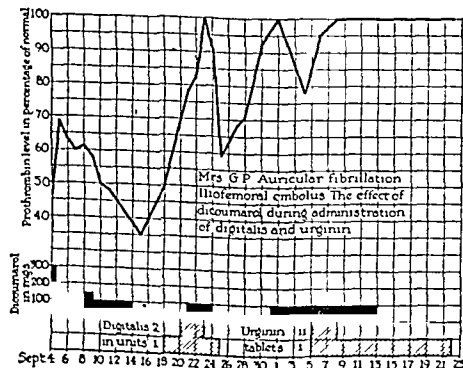


Chart 13.—Note that the prothrombin level, which was readily kept under 50 per cent of normal, promptly rose when digitalis was administered. When urginin was given it was impossible to get a lowering of the prothrombin level in spite of the fact that a total of 1,300 mg. was administered in thirteen days. A month previously the same patient responded to the same total dose with a drop of the prothrombin level to 35 per cent of normal.

usual anticoagulants, such as heparin and dicumarol, sodium tetrathionate seems to be capable of opposing the thrombogenic property of digitalis.

122 South Michigan Avenue—104 South Michigan Avenue.

Clinical Notes, Suggestions and New Instruments

DEATH FOLLOWING ATTACK BY SHARK CARCHARODON CARCHARIAS

CAPTAIN B. H. KEAN
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Controversy as to whether or not sharks will attack human beings has raged so violently in popular magazines and Sunday newspaper supplements that the medical and military importance of the subject may have been obscured. Injuries often attributed to sharks have been shown on closer investigation to have been inflicted by fish such as the barracuda. For this and other reasons some have been inclined to ridicule or deny the danger of sharks. The present case is reported because scientific identification of a shark which attacked a human being is rare.

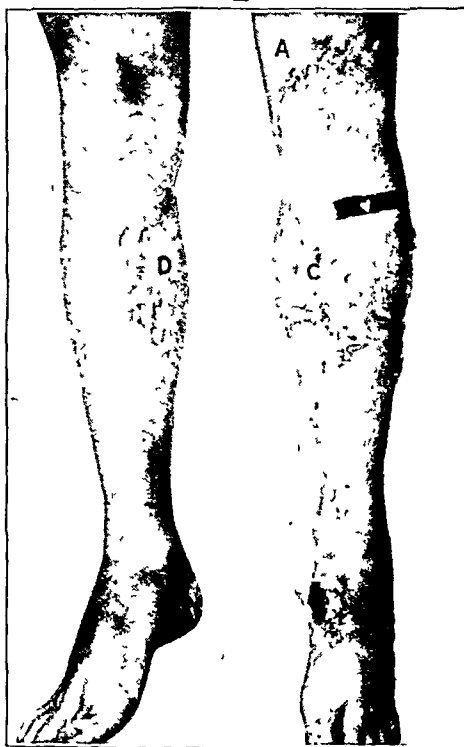


Fig 1.—Note tip of tooth placed on anterior surface of left leg. The photographs from which the illustrations were made were taken by the Signal Corps, U. S. Army, Panama Canal Department.

REPORT OF CASE

The attack occurred at 2:35 p. m., Sept. 23, 1943, in a shallow cove about 75 feet off the north shore of Rey Island, Gulf of Panama, Pacific Ocean, where a navy boat had anchored. No refuse had been dumped into the cove; no sharks were seen.

A sailor aged 20, wearing swimming trunks, dived into the water to determine if the ship's propeller had been fouled or damaged. As he came up he was attacked by a "man-eater" shark 6 or 7 feet long, which was seen at close range by the captain and by several members of the crew. It was impossible to shoot the fish without subjecting the sailor to danger, for

From the Board of Health Laboratory, Gorgas Hospital, Ancon, Canal Zone.

This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

both were thrashing about, the shark making repeated attacks. The injured man was lifted on deck within one minute of the initial attack. He was bleeding profusely from wounds of the left leg. A tourniquet was applied to the left thigh, emergency dressings were appropriately placed, and he was rushed to the local Naval hospital, where he arrived three hours later, exsanguinated and in shock.

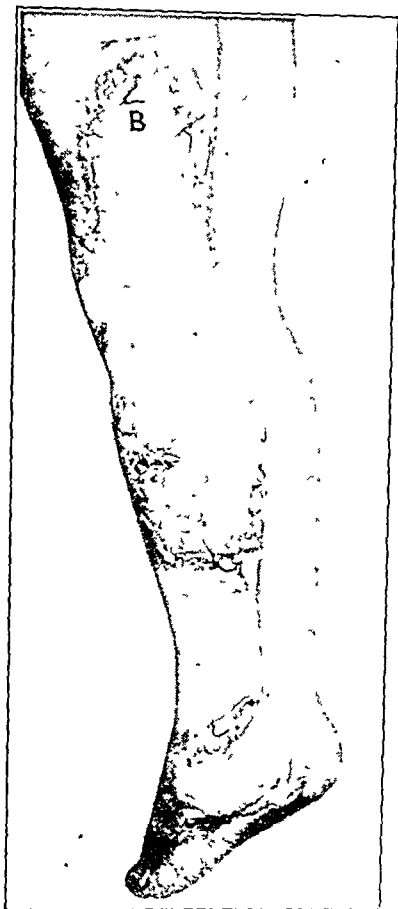


Fig. 2.—Note gashes on left foot and arched pattern of lacerations, set B.

Following the administration of anti-shock measures, he was taken to the operating room, where the left popliteal artery was repaired, the popliteal vein was ligated and muscle groups were rapidly approximated. A tip of a tooth found beneath the muscles in the popliteal fossa was removed. The patient died in shock four hours after admission and seven hours after the injuries were received.

A complete autopsy, including examination of the head, was performed at the Board of Health Laboratory, Gorgas Hospital, eleven hours after death. There was evidence of exsanguination; some congestion and edema of the posterior portion of the lungs were present. The only other lesions of interest were the injuries which are shown in the accompanying illustrations. A half dozen series or sets of lacerations, arranged in arches, were present on the lower third of the left thigh, the left leg and the left foot. A set of lacerations involved the anteromesial aspect of the middle of the right leg, and there were irregular lacerations of the left hand and right great toe. A tooth pattern suggestive of two, three and four rows of teeth could be recognized in several of the series or sets of lacerations.

Set A (fig. 1), which consisted of twelve individual lacerations averaging 1.5 cm. in length, arranged in two rows, extended deeply into the left knee joint. The medial condyle of the

femur, especially the cartilaginous surface, was crushed. Wedged into niches in the condyle were fragments of teeth, the largest measuring 1 cm. in its greatest dimension and similar to the fragment illustrated in figures 1 and 3.

Set B (fig. 2) involved the posterior and lateral aspects of the lower third of the left thigh. When the sutures were removed, the lacerated skin, subcutaneous tissue and biceps femoris, semimembranosus and semitendinosus muscles fell away, exposing the popliteal fossa (figure 3). The torn popliteal artery had been adequately repaired. The vein had been severed, and both ends ligated. The tibial nerve just distal to its origin from the sciatic nerve was irregularly torn but not completely severed.

In figure 3 is shown the tip of a tooth as it was found by the surgeon at the time of operation. On the popliteal surface of the femur were several grooves and gashes, and it appeared likely that the tip of the tooth broke off after striking the femur in this area.

Sets C and D (fig. 1) extended through the soft parts to each tibia, which was nicked and grooved; several tiny, irregular fragments of teeth were found in the periosteal tissue.

IDENTIFICATION

The tips of two teeth, one removed from the popliteal fossa by the surgeon (fragment shown in figures 1 and 3), and one removed from the medial condyle of the left femur, were shown on Oct. 12, 1943 to Mr. John T. Nichols, curator of recent fishes, of the American Museum of Natural History, New York, who identified them as "tips of the teeth of a small so-called man-eater shark *Carcharodon carcharias*, and from a small individual of this species probably not more than 7 feet or so long." Dr. C. M. Breder Jr., curator of the New York Aquarium, concurred in the identification.

COMMENT

In 1929 Phalen¹ reported a case of unprovoked shark attack in which a native Panamanian youth was attacked while swimming off Taboga Island, which is about 35 miles from Rey Island. The shark, seen by several persons, tore a leg off the swimmer. The shark was caught two hours later, and the leg and a portion of the bathing suit were found within it



Fig. 3.—Note tip of tooth in left popliteal fossa, as found at time of operation.

Conclusive evidence is at hand, therefore, that sharks will attack human beings. A discussion of frequency of such attacks in various parts of the world and of the use of shark repellents is beyond the scope of this report.

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A SUGGESTED THERAPY FOR THE PREVENTION OF
GRANULOCYTOPENIA INDUCED BY THIOUREAE. D. GOLDSMITH, PH.D.; ALBERT S. GORDON, PH.D.;
GRACE FINKELSTEIN, B.A., AND HARRY A. CHARIPPER, PH.D.
NEW YORK

The administration of thiourea and its derivatives and the sulfonamides to animals results in the development of a state of hypothyroidism.¹ These substances produce this effect by interfering with the synthesis of normal thyroid hormone.² Clinical studies have shown that thiourea and thiouracil are effective in the treatment of hyperthyroidism.³ The possibility of the occurrence of agranulocytosis in patients treated with these drugs has been indicated in the work of Astwood.⁴ The present work will demonstrate that a neutrophilic granulocytopenia also results from feeding thiourea to adult rats. Since the granulocytopenia produced in weanling rats fed sulfonamides has been corrected by liver,⁵ it was decided also to test the effects of solubilized liver⁶ on the thiourea-induced neutropenia.

Eighteen adult male rats weighing 200 to 240 Gm. were fed a standard laboratory ration containing 0.5 per cent thiourea for fifty-eight days. Six animals of another group were treated similarly but in addition received 5 per cent of solubilized liver incorporated in the ration. Seventeen animals served as untreated

expressed as a percentage. Hemoglobin determinations were made with a Fisher electrohemometer. Differential white cell counts were made from dried blood smears treated with Wright's stain.

It will be observed from the table that a significant diminution in the total white cell count occurs in the rat after approximately forty days on thiourea and is not intensified by continuation of treatment. The most striking hematologic change observed in the animals receiving thiourea ration is the pronounced neutrophilic granulocytopenia. This condition becomes progressively more severe with continued treatment. It is to be observed, however, that administration of the liver almost completely prevents the development of the neutropenia. Eosinophil and monocyte percentages are not affected by thiourea. No typical basophils were encountered in any of the normal or experimental animals. The data also indicate that the thiourea-induced anemia is not accentuated and does not respond to liver therapy. There is, moreover, practically no change in the hemoglobin concentrations and the reticulocyte percentages.

It would thus appear that the granulocytopenia induced by administration of either the sulfonamides⁵ or thiourea, as shown in the table, may be prevented by liver. A norite eluate fraction of liver has been found to alleviate the leukopenia in monkeys maintained on a synthetic diet⁷ and that induced

Effects of Thiourea and Thiourea Plus Liver on the Formed Elements of Blood in the Rat

Experimental Treatment	Duration of Treatment (Days)	R. B. C. (Millions per Cu. Mm.)	W. B. C. (Thousands per Cu. Mm.)	Hb. (Grams per 100 Cc.)	Reticulo-cytes, %	Neutro-phils, %	Lympho-cytes, %	Mono-cytes, %	Eosino-phils, %
Normal (untreated).....	—	8.5 (7.6-9.7)	22.1 (17.1-27.1)	14.8 (12.5-17.0)	1.1 (0.1-3.2)	32.7 (25-39)	61.2 (44-74)	1.7 (0-4)	2.4 (0-5)
Thiourea.....	21	6.9 (6.0-7.3)	21.2 (18.2-26.8)	14.6 (14.5-15.0)	1.9 (1.6-2.0)	10.0 (8-13)	86.3 (82-88)	1.2 (0-3)	2.6 (1-6)
Thiourea plus liver.....	21	7.6 (6.9-8.2)	21.3 (17.4-28.7)	14.3 (12.5-15.0)	2.2 (1.2-3.0)	27.7 (6-47)	68.9 (44-88)	1.4 (0-3)	2.2 (1-5)
Thiourea.....	40	6.5 (5.9-7.0)	16.5 (11.6-19.2)	15.2 (14.0-16.0)	1.7 (1.5-2.0)	7.0 (2-13)	90.0 (85-94)	0.8 (0-2)	2.2 (1-3)
Thiourea plus liver.....	40	7.1 (5.2-8.2)	16.8 (12.5-21.7)	14.1 (12.5-15.2)	1.7 (1.0-2.5)	28.5 (14-48)	68.4 (44-78)	1.2 (0-2)	1.8 (1-4)
Thiourea.....	58	6.1 (5.8-7.0)	16.9 (12.3-22.0)	14.2 (12.5-15.0)	1.8 (1.0-2.5)	5.4 (2-10)	92.8 (89-97)	0.9 (0-3)	1.1 (1-2)
Thiourea plus liver.....	58	7.2 (6.3-8.5)	15.4 (11.9-21.2)	14.3 (12.0-16.0)	1.8 (1.5-2.0)	32.0 (21-43)	64.5 (40-72)	1.2 (0-3)	2.3 (2-4)

All figures represent mean values. Numbers in parentheses indicate range in values.

controls. Blood samples were taken from the tail of each animal at the three different times indicated in the accompanying table. Total erythrocyte and leukocyte counts were made in duplicate. Red cell counts were required to agree within ± 4 per cent, and white cell counts to within ± 10 per cent. Reticulocyte counts were made from wet smears of whole blood previously diluted with 2 per cent sodium citrate and stained with brilliant cresyl blue. One thousand erythrocytes were counted for each determination, and the reticulocytes

in rats by sulfaguanidine.⁸ Waisman and Elvehjem⁷ have proposed that folic acid is the active agent in this liver fraction. By using the crystalline material, Daft and Sebrell⁹ have demonstrated that the corrective factor is actually folic acid. In view of these findings, the use of folic acid or liver in the prevention and treatment of the granulocytopenia resulting from the administration of thiourea compounds in hyperthyroid patients is suggested.

SUMMARY

The feeding of thiourea to adult male rats results in the development of a definite neutrophilic granulocytopenia. Simultaneous administration of solubilized liver almost completely prevents this neutropenic state. On the basis of these findings and those of others¹⁰ the use of liver or folic acid in the prevention and in the treatment of the thiourea-induced granulocytopenia is suggested.¹¹

Dr. Goldsmith is also of the College of the City of New York. This investigation was supported by a grant from the Commonwealth Fund.

From the Department of Biology, Washington Square College of Arts and Science, New York University.

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10. Spicer, Daft, Sebrell and Ashburn.⁵ Kornberg, Daft and Sebrell.⁵ Waisman and Elvehjem.⁷ Axelrod, Gross, Bosse and Swingle.⁸

11. Since this article was written, the following articles have been published:

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Council on Foods and Nutrition

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.
GEORGE K. ANDERSON, M.D., Secretary.

NUTRITIONAL VALUE OF WHEAT GERM AND CORN GERM

Wheat germ has attracted attention in the field of nutrition for many years. Consideration was first given to the embryo or germ part of the wheat kernel when it was found to be much richer in vitamin B₁ than the rest of the seed. Wheat germ was recognized along with yeast and rice polishings as an important source of this vitamin for both isolation work and treatment of beriberi. With increased production of patent flour and improved methods of separating the germ from the bran and middlings, wheat germ became an important commercial product. It has been estimated that 75 million pounds of wheat germ could be produced each year in the United States and Canada. Because of the high fat content of the germ some difficulty has been experienced in preserving it, but this has been eliminated to some extent by more careful manufacturing and processing and in one case by removing the fat with the production of defatted wheat germ.

In 1927 Goldberger¹ gave careful consideration to the antipellagra value of wheat germ and found it to be a good source. After the discovery of vitamin E, wheat germ and wheat germ oil were used as sources of this vitamin. Alpha tocopherol was isolated from wheat germ oil in 1936.² More recently there has been much interest in the quality of the protein in the embryo from cereal grains. The true nutritional value of this product can best be established by tabulation of the amount of each of the essential nutrients present. Fortunately rather extensive studies have been made during the past two years but there are undoubtedly other biologic values which still have not been evaluated. The available data on wheat germ as well as corn germ will be summarized briefly.

Grewe and LeClerc³ reported the following values for nineteen samples analyzed in their laboratory:

Water	7.4-11.5	per cent
Protein	18.3-35.3	per cent
Ether extract	5.2-15.0	per cent
Ash	3.1-4.9	per cent
Crude fiber	1.6-3.5	per cent
Sugar, mostly sucrose	6.6-17.4	per cent
Other carbohydrates	19.2-53.0	per cent

Most of the additional figures found in the literature fall within these ranges. The type of wheat, its treatment before milling and the kind of milling process all influence the composition of the germ. The commercial germ obtained from soft wheat tends to be higher in nonsucrose carbohydrates than that obtained from hard wheats. Some samples may contain appreciable quantities of bran or flour, and the amount of these substances affects the composition, especially the B vitamin content. Commercial preparations intended for food are usually considerably purer than those used in animal feeding. In the case of defatted wheat germ the ether extract would be very low and therefore the percentage of protein and other water soluble ingredients would be increased.

Minerals.—Grewe and LeClerc reported the following average figures for the mineral content of composite samples of germ obtained from various classes of wheat: total ash 4.26 per cent, magnesium 0.32 per cent, calcium 0.055 per cent, potassium 0.93 per cent, phosphorus 1.05 per cent, manganese 0.020 per cent, copper 0.001 per cent, iron 0.0058 per cent, chlorine 0.082 per cent, sulfur 0.23 per cent. Zinc and aluminum are also present in minute amounts. Andrews and Bailey⁴ reported a total phosphorus content of 1.24 per cent with the following distribution: phytin phosphorus 47.9 per cent, lipid phosphorus 5.7 per cent and undetermined phosphorus 46.4 per cent of the total.

1. Goldberger, J., and Wheeler, G. A.: A Study of the Pellagra Preventive Action of the Coupea (*Vigna Sinensis*) and of Commercial Wheat Germ, Pub. Health Rep. 42: 2383 (Sept. 30) 1927.
2. Evans, H. M.; Emerson, O. H.; and Emerson, Gladys A.: The Isolation from Wheat Germ Oil of an Alcohol, α -Tocopherol, Having the Properties of Vitamin E, J. Biol. Chem. 113: 319 (Feb.) 1936.
3. Grewe, E., and LeClerc, J. A.: Commercial Wheat Germ: Its Composition, Cereal Chem. 20: 423 (July) 1943.
4. Andrews, J. S., and Bailey, C. H.: Distribution of Organic Phosphorus in Wheat, Indust. & Engin. Chem. 24: 80 (Jan.) 1932.

Protein.—Boas-Fixsen and Jackson⁵ and Chick and her associates⁶ found wheat embryo protein to be about equal to whole wheat and yellow maize proteins and slightly superior to the proteins of the wheat endosperm. Later work by Chick showed that wheat germ protein can effectively supplement the wheat gluten protein. Hove and Harrel⁷ have recently reinvestigated the problem using the rat growth method of Osborne, Mendel and Terry⁸ whereby the test food is added to a ration which is complete in everything but protein and the biologic value is calculated as the ratio of the body weight gain to the amount of protein ingested during the experimental period. By this method, wheat germ protein was found to be about equal to the protein of skim milk and boiled egg white. Furthermore, the wheat germ protein and casein were found to be equally effective in supplementing poor protein diets. Thus it has been fairly well established that wheat germ is an excellent protein source which should not be neglected.

B Complex.—The following values for B vitamins in wheat germ appear in the literature:

	Mg. per 100 Gm.	
	Range	Typical Figure
Thiamine	1.9-4.7	3.0
Riboflavin	0.5-1.2	0.7
Niacin	3.4-6.9	6.0
Pyridoxine	0.9-1.5	
Pantothenic acid	1.5-3.5	
Biotin	0.045	
Inositol	250	
Choline	410	
Paraaminobenzoic acid	0.10	

The main reason for the variation is probably related to the presence of bran and flour. The work of Barton-Wright,⁹ of Hinton¹⁰ and of Andrews¹¹ has shown that of the embryo, bran and flour constituents of "wheat germ" the bran is richest in niacin. The aleurone and scutellum tissue associated with the germ contains the most thiamine, while the pure germ itself is richest in riboflavin and is therefore an excellent source of thiamine and riboflavin and furnishes considerable amounts of the other B vitamins as well.

CORN GERM

The following figures have been given for defatted corn germ: protein 20-24.5 per cent, fat 2.0 per cent, ash 9.6 per cent and moisture 8 per cent. More than half the ash is phosphorus, and the iron content (0.03 per cent) is considerably higher than that in wheat germ. Mitchell and Beadles¹² have studied the protein and report that it is 85 per cent as digestible as that of beef round and its biologic value for the growing rat is as high as that of beef round. They also report figures of 4.18 per cent crude fiber, 6.9 per cent water, 21.2 per cent crude protein and 2.56 mg. of thiamine per hundred grams in the sample they studied. The VioBin Corporation reports the following values for B vitamins in corn germ:

	Mg. per 100 Gm.
Thiamine	2.5-3.5
Riboflavin	0.6
Niacin	4.5
Pantothenic acid	1.4

Conner and Straub¹³ have reported similar figures for thiamine and riboflavin, while Strong (unpublished data) has checked the foregoing figures for niacin, riboflavin and pantothenic acid.

SUMMARY

Wheat and corn germs are a good source of high quality protein. The thiamine content is about three times as high as whole grain cereals, and one fourth to one fifth as rich as average

5. Boas-Fixsen, M. A., and Jackson, H. M.: The Biological Value of Proteins of Wheat, Corn and Milk, Biochem. J. 26: 1923, 1932.
6. Chick, H.; Boas-Fixsen, M. A.; Hutchinson, J. C., and Jackson, H. M.: The Biological Value of Proteins: IV., Biochem. J. 29: 1712, 1935.
7. Hove, E. L., and Harrel, C. G.: The Nutritive Value of Wheat Germ Protein, Cereal Chem. 20: 141 (March) 1943.
8. Osborne, T. B.; Mendel, L. B., and Terry, E. L.: A Method of Expressing Numerically the Growth Promoting Value of Proteins, J. Biol. Chem. 37: 223 (Feb.) 1919.
9. Barton-Wright, E.: The Microbiological Assay of Riboflavin in Cereals, Nature 149: 696 (June) 1942.
10. Hinton, J. J. C.: Vitamin B₁ and Riboflavin Contents of Wheat Germ, Bakers Digest 17: 23 (Feb.) 1943.
11. Andrews, J. S.: Vitamin Distribution in Wheat Flour, Nutrition Rev. 1: 422 (Dec.) 1943.
12. Mitchell, H. H., and Beadles, J. R.: Corn Germ: A Valuable Protein Food, Science 99: 129 (Feb.) 1944.
13. Conner, R. T., and Straub, G. I.: The Thiamine and Riboflavin Contents of Wheat and Corn, Cereal Chem. 18: 671 (Sept.) 1941.

brewers' yeast. The riboflavin content of grains is largely concentrated in the germ and the actual amount is about equal to that of dried whole eggs, about one half of that of dried milk and about one third of that of whole liver. Wheat and corn germs cannot be considered rich sources of niacin. The amount of niacin in wheat germ is equal to that in the whole kernel, and the amount in corn germ is somewhat higher than the whole corn kernel, since corn is lower in niacin than wheat. The germ is also a relatively good source of pyridoxine and pantothenic acid and other members of the B complex. While wheat and corn germ are not exceptionally rich in any of the B vitamins, they may be regarded as good natural sources of these factors and may be used effectively either directly or as supplements to other less nutritious foods in the human diet.

Council on Physical Medicine

THE COUNCIL ON PHYSICAL MEDICINE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. THIS COUNCIL WAS FORMERLY KNOWN AS THE COUNCIL ON PHYSICAL THERAPY.

HOWARD A. CARTER, Secretary.

WESTERN ELECTRIC TELEPHONE TYPE AUDIPHONE, MODEL J-1 ACCEPTABLE

Manufacturer: Western Electric Company, Inc., 120 Broadway, New York 5.

This is a carbon type hearing aid with a transmitter, a mechanical amplifier and a magnetic receiver. Two receivers were furnished for examination, the #714B and 714C types. The amplifier and sound pick-up work on the principle of a telephone transmitter. The device was investigated by the Council and the results are as follows.

Weights and overall dimensions of the various parts:

Transmitter, 3 inches by $\frac{7}{8}$ inch (circular in shape).

Receiver $\frac{3}{8}$ inch in diameter.

Amplifier $1\frac{1}{8}$ inches by 1 inch by $1\frac{1}{8}$ inches.

Weight of transmitter, receiver and amplifier 6 ounces.

Battery weighs 9 ounces.

Total weight of instrument 15 ounces

Battery.—Voltages and current drains are as follows:

Audiphone Battery GB-145, $4\frac{1}{2}$ volts.

Current drain at $\frac{1}{4}$ volume 30 milliamperes.

Current drain at $\frac{1}{2}$ volume 40 milliamperes.

Current drain at full volume 50 milliamperes.

All required data have been furnished by the manufacturer, such as response curves, descriptive booklet and directions.

Acoustical Gain.—The physical examination was made as follows: Average of observations of two trained observers using fitted ear molds were seated 5 feet from loud speaker which delivered frequencies of pure sine wave characteristics.

Volume Control	Set at	Frequency							
		256	512	1,024	1,448	2,048	2,896	4,096	
Receiver									
714C	$\frac{1}{2}$	1	2	3	6	4	10	3	Decibels
714C	$\frac{3}{4}$	2	3	7	8	8	11	4	Decibels
714B	$\frac{1}{2}$	0	0	3	5	3	10	3	Decibels
714B	$\frac{3}{4}$	2	2	5	9	10	13	3	Decibels

Physical and Mechanical Features.—The instrument consists of a black plastic molded case circular in form and pleasing in appearance. No particular change has been made in the actual appearance of the instrument from that of the previously accepted model. Also as in the previous model the carbon amplifier is connected directly to its own battery source.

Performance.—In general the instrument performs as represented. The specific advantage over previous models of this type is that the microphone operates in both vertical and horizontal positions. This is a distinct improvement. The volume control operates smoothly and is effective throughout the entire range. There is a minimum of case noise and no feedback squeal with a properly fitted ear mold.

Recommendations.—It must be remembered that this is a carbon instrument of the so-called "telephone type" and therefore cannot be judged on the basis of present requirements for vacuum tube hearing aids. The present model is an improvement over the one originally accepted by the Council on Physical Therapy. The workmanship is first class.

Despite the fact that the overall gain is not high, and that the gain for specific frequencies is also not comparable to any vacuum tube aids, the Council believes that this type of aid does serve a useful purpose. The Council on Physical Therapy voted to accept the Western Electric Telephone Type Audiphone Model J-1 for inclusion in its list of accepted devices.

OTARION HEARING AID (MODEL A-2) ACCEPTABLE

Manufacturer: Otarion, Incorporated, 448 North Wells Street, Chicago.

Model A-2 is a vacuum tube hearing aid consisting of three tubes, a transmitter, a crystal receiver and a battery unit held in a leather case. This model comes in four combinations, namely (1) red dot, maximum low frequency suppression, (2) orange dot, moderate low frequency suppression, (3) green dot, slightly low frequency suppression, and (4) black dot, no suppression. Two instruments were submitted, No. 3348, red dot, and No. 3351, black dot.

Model A-2, No. 3348 (red dot): Transmitter, $3\frac{3}{8}$ inches by $2\frac{3}{8}$ inches by $\frac{5}{8}$ inch, weight 4 ounces. Receiver, crystal, $\frac{7}{8}$ inch in diameter. Batteries, cords and receiver weight 10 ounces. Total weight of the entire instrument, 14 ounces.

Batteries.—Voltages and current drains are as follows: A-battery, 1.5 volts; current drain at $\frac{1}{2}$ volume, 57.5 milliamperes. B-battery, 45 volts; current drain at $\frac{1}{2}$ volume, 1.5 milliamperes.

The instrument was examined in a laboratory acceptable to the Council. The following data are the average of observations of two trained observers using fitted ear molds seated 5 feet from loud speaker delivering frequencies of pure sine wave characteristics:

Volume Control	Set at	Frequency							
		256	512	1,024	1,448	2,048	2,896	4,096	
	$\frac{1}{2}$	4	5	7	16	14	10	13	Decibels
	$\frac{3}{4}$	8	10	14	18	19	18	23	Decibels

Model A-2, No. 3351 (black dot): Transmitter, $3\frac{3}{8}$ inches by $2\frac{3}{8}$ inches by $\frac{5}{8}$ inch, weight 4 ounces. Receiver, crystal, $\frac{7}{8}$ inch in diameter. Batteries, cords and receiver weight, 10 ounces. Total weight of the entire instrument, 14 ounces.

Batteries.—Voltages and current drains are as follows: A-battery, 1.5 volts; current drain at $\frac{1}{2}$ volume, 58 milliamperes. B-battery, 45 volts; current drain at $\frac{1}{2}$ volume, 1.1 milliamperes.

Acoustical Gain.—The following data are the average of observations of two trained observers using fitted ear molds seated 5 feet from loud speaker delivering frequencies of pure sine wave characteristic.

Volume Control	Set at	Frequency							
		256	512	1,024	1,448	2,048	2,896	4,096	
	$\frac{1}{2}$	12	14	17	20	12	9	15	Decibels
	$\frac{3}{4}$	21	20	24	25	20	13	20	Decibels

Physical and Mechanical Features.—The instrument consists of a small and compact black plastic case and is of smooth appearance. The on and off switch and volume control is a small button placed on the left hand side of the instrument. This operates fairly easily. The construction of the instrument is of the highest type. All electrical connections are well made, and the disposition of the parts is unusually compact. The microphone is well cushioned against any possible jarring.



Otarion Hearing Aid
Model A-2

Performance.—The instrument operates in a very satisfactory manner and performs quite as represented. There is practically no feedback squeal even at high intensities and little if any distortion at high levels. Case noise and cord noise are minimal.

The Council on Physical Therapy voted to accept the Otarion Hearing Aid, Model A-2 (four combinations), for inclusion in its list of accepted devices.

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SATURDAY, JULY 22, 1944

PHYSICAL FITNESS PROGRAM

The great victories which are being won by American troops in war zones all over the world are not being won by men who are physical weaklings or degenerate types of manhood. In this, as in previous wars, the American soldier has proved himself to be about as competent a fighter as the world can produce. He represents a selection of the best physical specimens that the nation has developed; to them have been applied the technics for physical and military training that the years have proved to be efficient. In selecting the men who now constitute our armed forces, 33,000 doctors and 10,000 dentists participated as members of various boards. Let the people remember that this service was given by these overworked and harassed physicians without any remuneration other than the satisfaction of having participated in the war effort.

As shown by the article of Colonel Leonard G. Rowntree in this issue of THE JOURNAL (page 821) the standards of physical fitness for military service have varied from time to time as the needs for manpower increased. The level of the requirements depends on the number of men needed in the military services, the urgency of the need, the size of the manpower pool and the relative need for men for military service or for industry. In the course of these studies a considerable residue of men not physically fit even for training became apparent. On page 825 is a list of the principal causes for rejection of registrants who were placed in class 4-F. Not all of those thus rejected can be made fit even by the application to the problem of everything that medicine now knows. About 35 per cent of the total were rejections for mental disease, mental deficiency, including illiteracy, and neurologic disorders. However, a deduction of about 1,500,000 men in these categories would still leave about 2,500,000 who could be benefited by the application of proper medical treatment. Many of them could be made to meet the needs of the armed forces.

The rehabilitation of those physically disabled is one problem. The creation of a state of physical fitness among young people in general is another problem. Thirteen per cent of young men entering the University of Illinois¹ could not swim at all, 64 per cent could not swim 50 yards, 3.1 per cent could not chin themselves once, 25.9 per cent could not chin themselves five times, 24.1 per cent could not jump an obstacle waist high, 50 per cent could not make the muscles of the abdomen hard enough to resist a fist pushed into the abdomen by an examiner, 79 per cent could not lift the legs from the floor twenty times when lying on the back and then do twenty sit ups in succession. Evidence of this type lends support to the charge by Colonel Rowntree that many Americans are flabby, soft, pampered and in need of conditioning. Physical fitness requires development. It is a bodily state in which the tissues have power and efficiency. The basic material of the American body is sound; it needs training.

The figures cited by Cureton for young men entering the University of Illinois are fully supported in the statements of Dr. Carl A. Wilzbach, commissioner of health of the city of Cincinnati, who reports in this issue of THE JOURNAL (page 828) on the medical and dental examinations of junior and senior high school students in Cincinnati. An inventory in the form of a health examination was made for 5,000 students. A program of correction utilizing the medical profession was established. Dental defects and disturbances of vision and hearing and particularly conditions related to the heart were given serious consideration. The results of these endeavors indicate that the returns in the way of improved health far more than repay the effort and the funds expended in a program of this kind.

Industry too is giving serious consideration in these times to the problem of physical fitness. Dr. W. P. Jacobs points the way to proper planning for physical fitness in industry in his article in this issue of THE JOURNAL (page 831). Properly he emphasizes that physical fitness is a personal and individual problem. While industrial programs of recreation and sports are built around mass action, their success is dependent on the correct diagnosis of the needs of each individual and the extent to which the individual embraces the opportunity to become fit. Particularly needed is an educational program directed along these lines.

A number of tests have been developed by medical science to determine physical fitness, particularly motor skills. In the development of such procedures Dr. J. Roswell Gallagher of Phillips Academy in Andover, Mass., and Dr. Lucien Brouha of the Hygiene Depart-

1. Cureton, T. K.: The Unfitness of Young Men in Motor Fitness, J. A. M. A. 123: 69 (Sept. 11) 1943.

ment of Harvard University have contributed greatly (page 834). They too emphasize the desirability of a body building program for every healthy person. They point out also that a proper physical education program requires more than calisthenics. The introduction of games and competitive sports which develop endurance and which add interest to physical conditioning is an important part of the program for producing physical fitness. They too find that activities leading toward physical conditioning cannot be beneficial unless the person has been found medically fit and unless the program for physical fitness is planned to suit his needs.

In 1943 President Roosevelt created a national committee on physical fitness under theegis of the Federal Security Agency with Mr. John B. Kelly as chairman and Colonel Rowntree as vice chairman. At the invitation of this committee the Board of Trustees of the American Medical Association with the support of the House of Delegates has authorized participation of the American Medical Association on a joint committee of the American Medical Association and the National Committee on Physical Fitness to be charged with development and operating a program for improving physical fitness throughout the nation during the year beginning September 1. Such a program would include evaluation of the physical state of our young men and women and increase the activities and responsibilities of schools and colleges in physical education, also improve opportunities for gaining physical health and enlist the active support of industrial, social, religious, patriotic, professional and other groups. The members of the joint committee, meeting under the chairmanship of Colonel Leonard G. Rowntree, includes Mr. A. H. Pritzlaff, past president of the American Association of Health, Physical Education and Recreation; Mr. Arch Ward, sports editor of the *Chicago Tribune*; Dr. Hiram A. Jones, state director of physical fitness for New York; Dr. William P. Jacobs, president of Presbyterian College, Clinton, S. C.; Dr. John W. Studebaker, commissioner of the U. S. Office of Education, and, representing the American Medical Association, Dr. Roscoe L. Sensenich of the Board of Trustees; Dr. Louis A. Buie of the Mayo Clinic, Rochester, Minn.; Dr. Morris Fishbein, editor of *THE JOURNAL*; Major General George F. Lull, Deputy Surgeon General of the U. S. Army, and Dr. William D. Stroud of Philadelphia.

This committee held its first session in Washington on July 14, at which time plans were inaugurated which are certain to eventuate in a campaign to interest the American people in the program for physical fitness and to bring increased health and efficiency to our nation.

ETIOLOGY OF PRIMARY ATYPICAL PNEUMONIA

Eaton and his collaborators¹ have investigated the agent in sputums and lung tissues from certain cases of atypical pneumonia. With this agent they were able to produce pulmonary lesions by primary intranasal inoculation of cotton rats. Evidence is presented that this agent has been adapted to chick embryos and that it is neutralizable by serums taken during convalescence from patients with primary atypical pneumonia. The authors point out the difficulties and confusion introduced into studies of this kind by previously unrecognized latent respiratory viruses of rodents. About 370 cotton rats were inoculated intranasally with sputums from 128 persons with atypical pneumonia and with suspensions of lung tissue from 15 patients who had died of the disease. Nonbacterial lung lesions were observed in 28 per cent of the animals, an incidence over six times as great as was seen in control animals. Hamsters were inoculated with five specimens of human material which have produced lesions in cotton rats. A virus was apparently transmitted to cotton rats from 10 of 18 patients in whom the presence of cold agglutinins was demonstrated. The lung lesions in the two species of animals were similar. Continued serial passage in 9 cases resulted in the eventual establishment of an agent in the cotton rats which consistently produced lung lesions; and in 4 cases this result was repeated, starting with the original material. The agent in cotton rats which was responsible for the production of lesions in the animals of the later passages was, however, not identical with the virus in the human material. This was suspected when neutralization by convalescent human serum could not be obtained regularly, although homologous immune rabbit or cotton rat serum readily neutralized these agents. Further investigation showed that the agent most frequently obtained in the serial passages was a latent pneumonia virus present in cotton rats. Despite the presence of these contaminating agents, some evidence from reinoculation experiments suggested that the original human virus was carried for several passages in cotton rats.

A sample of bacteriologically sterile human lung tissue from a patient with atypical pneumonia and filtered broth suspensions of 4 sputums were inoculated into the amniotic sac of chick embryos. Suspensions of the lungs, trachea and amniotic membrane of chick embryos of the third to fifteenth passages of one strain consistently produced lung lesions in hamsters after intranasal inoculation, but only about 30 per cent of the cotton rats inoculated with this material developed lung lesions. The lesions resulting from inoculating with chick embryo suspensions were similar in gross and microscopic appearance to those found in animals inocu-

1. Eaton, Monroe D.; Meiklejohn, Gordon, and Van Herick, William: Studies on the Etiology of Primary Atypical Pneumonia; A Filtrable Agent Transmissible to Cotton Rats, Hamsters and Chick Embryos, *J. Exper. Med.* 79: 649 (June) 1944.

lated with human material. The experiments involving passage in chick embryos with human lung tissue were successfully repeated. In 2 cases the virus was successfully adapted from sputum to the chick embryos and carried in serial passages.

The virus isolated from cases of atypical pneumonia is apparently not a member of the psittacosis-lymphogranuloma group, as demonstrated by the failure to infect mice by the intranasal route, the consistent absence of characteristic elementary bodies in impression smears of infected lung or chick embryo tissues, differences in gross and microscopic pathologic conditions and lack of antigenic relationships. The virus described seems to be propagated more readily by amniotic inoculation into chick embryos than by intranasal passage in animals. Evidence of infection of the chick embryo is based on the demonstration of small to moderate size lung lesions in cotton rats and hamsters inoculated intranasally, and neutralization by convalescent serum was indicated by inhibition of these lesions.

The question as to what proportion of all cases of primary atypical pneumonia is caused by the virus described has not been answered. This can probably be done by neutralization tests in a large series of cases.

Current Comment

NEW AND NONOFFICIAL REMEDIES NOW AVAILABLE

The 1944 edition of New and Nonofficial Remedies is now available. Each chapter has been revised to bring to the reader the present consensus of actions, uses and dosage of the preparations included. Included in this new edition are chapters on allergenic preparations, analgesics and antipyretics, anesthetics, anti-infective agents, autonomic drugs, cardiovascular agents, central nervous system stimulants, diagnostic aids, diuretics, hormones, sedatives and hypnotics, serums and vaccines and vitamins. Of the remaining chapters one promises to be of increasing importance: it is concerned with the actions and uses of contraceptive preparations. This section is a new addition to the book. Another addition of great practical importance is a list of tables of approximate equivalents of doses, apothecaries' and metric systems. The latest edition of New and Nonofficial Remedies adequately supports one of the functions of the Council on Pharmacy and Chemistry: "to advise the medical profession concerning the status of medicinal articles." A companion volume that is also available is the Council's Annual Reprint of Council Reports, which contains reports on articles declared unacceptable for inclusion in N. N. R. during 1943, articles omitted from N. N. R. and nineteen reports of general educational nature. For example, one may find extensive reports on the history of the use of the apothecary and metric systems, nomenclature and identification of endocrine preparations now on the market, use of estrogens in the

treatment of prostatic cancer, use of cod liver oil preparations on the skin, status of xanthine compounds, local use of sulfonamides in dermatology, treatment of Trichomonas vaginitis, and conception control. Truly, these books represent a fitting printed record of the Council's unselfish efforts to promote rational therapeutics.

EVAPORATED MILK

Over a year ago¹ THE JOURNAL called attention to the need for assistance from the medical profession in securing proper utilization of the available supply of evaporated milk. Now it is necessary to urge physicians again to avoid prescribing evaporated milk by named brands. A severe shortage in supplies of evaporated milk has again developed in certain parts of the United States, chiefly along the eastern seaboard south of Pennsylvania. Probably the supply for the country as a whole for 1944 and 1945 will be somewhat decreased. Plans are being made to assure the needs of infants by instituting new rationing procedure. In addition, the support of the medical profession is needed if the babies are to get what they require. Not all brands of evaporated milk can be made continuously available in all the localities. The Subcommittee on Medical Food Requirements of the Committee on Drugs and Medical Supplies of the National Research Council considered this problem at a meeting on March 29, adopting the following resolution:

All brands of evaporated milk, whether or not irradiated, meeting the requirements of the Food and Drug Administration, are of sufficiently uniform composition to be used interchangeably for the feeding of infants and children. However, consideration should be given to whether or not the milk is irradiated or fortified with vitamin D and the extent of such fortification. It is further recommended that distribution should be facilitated by all means available.

A recent survey was made of all types of distribution of evaporated milk in a number of cities as well as among independent grocers in rural areas of the section of the country most affected by the present shortage. In many cases the shortage proved to be not a shortage of evaporated milk but a shortage of certain favorite brands. Less well known brands were available but not moving. A typical complaint from a mother in North Carolina stated "I have a baby 3 months old who has been taking X brand milk since he was born. My physician strongly advises against changing to any other brand. I now find that it is increasingly difficult and almost impossible to obtain it. . . ." Physicians can do a real service to their patients and their country by explaining to mothers that all brands of evaporated milk must meet federal standards effective since July 17, 1940 and enforced by the Food and Drug Administration. If the favorite or accustomed brand is not available, satisfactory results can be expected from the use of less familiar brands, provided consideration is given to whether the milk selected is irradiated or fortified with vitamin D. If the milk selected is not so fortified, supplementation of the diet or formula with this vitamin can be provided separately.

1. Evaporated Milk, Current Comment, J. A. M. A. 121:764 (March 6) 1943.

MEDICINE AND THE WAR

ARMY

FLIGHT SURGEONS IN BURMA

A specially organized unit of five flight surgeons and eight enlisted technicians made military medical history in Burma's jungle wilds by bringing hospital type care almost into the front lines. This unit, aided by five other enlisted men, ran what amounted to a small hospital, operated first aid stations in the field and participated in all air borne expeditions. Major Robert C. Page, command surgeon of the unit, returned to the United States recently and told the story of the medical chapters in the adventures of Col. Philip Cochran's first air commando force in Burma. He and his staff established "sick inn" in a tea planter's cottage at the air commando base in Assam not far from the Japanese lines and more than 200 miles from the nearest army general hospital. "Sick inn," set down by air freight in an area which had no rail or motor roads, had 36 beds with white sheets and most modern hospital conveniences, such as electric refrigeration and washing machines. But it was not a hospital by military definition. Neither was it a dispensary. It had too small a staff for a station hospital and too much laboratory and medical apparatus for a dispensary. Major Page stated that "military necessity was final authority for everything we did. This was the first time an air force had been called on to transport, supply, defend and act as sole communications channel for a ground force operating far behind the enemy's front. There was no table of organization for this pioneer operation and we all improvised."

After being assigned by the Air Surgeon's Office to fulfil a request from the commanding general, AAF, for five flight surgeons with highly professional qualifications, the ability to fly an airplane and a desire for combat duty, Major Page, himself a specialist in internal medicine, selected Capt. Peter A. Reiersen, Moscow, Idaho, specialist in surgery and a pilot; Capt. Weldon C. Murphy, Amarillo, Texas, eye, ear, nose and throat specialist and a pilot; Capt. Donald C. Tulloch, Ogdensburg, N. Y., general practitioner and a pilot, and Capt. Cortez F. Enloe, Manhassett County, Long Island, N. Y., trained in psychiatry and medical administration. The enlisted men were picked for ability to do at least two medical department jobs in addition to the one to which they were formally assigned. They were responsible for turning a rundown cottage into a mosquito proof, spotless and comfortable sick bay complete with a victory garden.

In addition to the officers flying cargo, bomber and pursuit aircraft and gliders, the air commando force also had a group of sergeants who held pilot's ratings. These "flying sergeants" were the pilots of the L-1s and L-5s, the "grass-hoppers" or "flying jeeps" of the AAF. These airplanes, together with the Fox Moths of the British Rescue Service, were responsible for the bulk of air evacuation of Chindits from Jap territory.

During the period Major Page had an opportunity to observe this operation in Burma, more than 2,000 casualties were evacuated. He states that "these little planes can carry one litter or a litter and a sitter patient, and the things the flying sergeants have done with them are incredible. Sometimes they would evacuate casualties from one end of a flying field while the Japs held the other end, actually flying over the heads of the enemy to escape. In one case 40 wounded men lay in a jungle clearing surrounded on three sides by Japs. Soon the tiny airplanes came hopping over the tree tops. They turned and glided swiftly into the clearing, two at a time. Under fire, each loaded a stretcher case and 2 wounded men who could walk and in a few minutes took off again for their base. They kept coming in until they had pulled out every one of the 40 from under the Jap's noses."

This method of front line air evacuation was originated in this theater of operations by the British, but it was not brought up to full potentialities until the arrival of the air commandos.

ARMY GRADUATES SPECIALLY TRAINED PSYCHIATRISTS

One hundred and forty medical officers who were given special training in three schools of military neuropsychiatry in the New York area graduated July 7 and were ordered to duty in army general hospitals to aid in treatment of psychiatric cases. Most of the officers were first lieutenants who recently completed nine month internships followed by special courses at the Army Medical Field Service School, Carlisle Barracks, Pennsylvania, and in general hospitals throughout the country, after which they entered the schools of military neuropsychiatry for three months' intensive study. Classes were conducted at the Mason General Hospital, Brentwood, L. I., the Columbia University College of Physicians and Surgeons, and Bellevue Hospital of New York University under the direction of leading psychiatrists and neurologists in civil and military life. One feature of the training schedule was observation by student officers of psychiatric examining procedures in operation at the New York City induction station. Medical officers returning from overseas and leading psychiatrists in civilian practice served as special lecturers.

Col. William C. Porter is director of the school at the Mason General Hospital. His assistants are Lieut. Col. Ralph T. Collins, Albany, N. Y., who had extensive service in Italy; Lieut. Col. Baldwin Keyes, Philadelphia, former professor of psychiatry at Jefferson Medical College, Philadelphia, who has seen service in Africa; Major William Dunn, New York, who served in the South Pacific, and Major James O'Leary, a neurologist, St. Louis.

The two schools in New York were under the general supervision of Capt. Norman Reider, Los Angeles. The course at Columbia University was under the direction of Dr. Nolin D. C. Lewis, director of the New York Psychiatry Institute and Dr. Tracy Putnam, director of the New York Neurological Institute. Dr. S. Bernard Wortis, professor of psychiatry at New York University and chief psychiatrist at Bellevue Hospital, was director of the school there.

REHABILITATION CENTER FOR BLIND

A rehabilitation center where blinded veterans of all branches of the service will receive extensive training to fit them for successful civilian lives recently opened at a former boys' school at Avon, Conn. All blinded servicemen will be sent to the center after they have received maximum benefit from medical and surgical treatment in service hospitals. The new installation, which was leased from the Avon school, will be known as the Old Farm Convalescent Hospital and is under command of Col. Frederic Thorne. The purpose of the center is to provide additional training for the blind in personal and social adjustment. They will be given extensive prevocational training on a sampling basis to determine as far as possible those occupational fields in which they will have the best chance of success after discharge from the service. The center maintains a staff of about 100 specially trained civilian and military supervisors, including vocational advisers and occupational therapists. It is planned to increase the size of the staff proportionally in the event of an increase in the number of blind casualties. To date there are 185 blind casualties from all branches of the service. Not all of these suffered blindness in combat.

Instruction will be given in such different kinds of work as stenography, typing, filing, general clerical tasks, metal and wood working, operation of small concession-type stores, and specialized farm jobs. Whenever possible, arrangements will be made to provide facilities for special studies in which patients may be interested. A staff of blind instructors has been selected to assist in helping patients reconcile themselves to their handicaps and overcome them. These instructors will conduct classes

and personal interviews and will teach the men reading, writing and typing by the braille method. On completion of a patient's social adjustment training, the Veterans Administration will arrange for any additional training he will require to fit him for a job, will help him find a job and maintain contact with his employer in seeing that he makes satisfactory progress.

THIRTY-NINE ENLISTED WACS BECOME COMMISSIONED PHYSICAL THERAPY AIDES

Thirty-nine enlisted members of the Women's Army Corps recently completed physical therapy training of almost a year's duration and were formally commissioned second lieutenants in the Medical Department of the Army. In nine army hospitals located in various sections of the country, these former Wacs were ushered into their official status with varying ceremonies. Strength of the physical therapy organization is less than a thousand aides at present, but an active recruiting effort is being made to increase this number. Major Emma Vogel, director of physical therapy aides, Office of the Surgeon General of the Army, stated that "these former enlisted Wacs are becoming officers of the Army at a time when their services are in urgent demand throughout the world.

"The initial thirty-nine have done an outstanding job. Our training program has been so popular with them that additional courses have been provided. It is now possible for civilian women who meet all the requirements, to enlist in the Women's Army Corps for the express purpose of taking this training.

"Casualty accounts from our overseas engagements are potent evidence of the need for physical therapists. These women have the opportunity of treating our wounded soldiers returned from those battle fronts and of experiencing the deep spiritual satisfaction that comes from aiding a patient to overcome his disability."

ONE HUNDRED NEW HOSPITAL CARS UNDER CONSTRUCTION FOR THE ARMY

One hundred new "unit type" hospital cars are being built for the Transportation Corps, Army Service Forces, by the American Car and Foundry Company, the War Department announced recently, to facilitate the War Department's plan for progressive evacuation of wounded. The cars will be placed in service starting in September, before invasion casualties in large numbers reach the United States. At the same time, all of the 120 ward cars and ward dressing cars in the Army's possession are being converted to unit cars as quickly as this can be done without interfering with the movement of casualties. The principal reason for the conversion is to add a cooking range to each car. En route to junction points where hospital trains are broken up, medical dining cars, of which the army has forty, will continue to be used to feed the wounded. After the trains are broken up, the kitchens in the unit type cars will be used, thus eliminating delays occasioned when sections of hospital trains have had to await the arrival of railroad dining car facilities.

Authorization of the new cars is in keeping with the War Department's policy to get the wounded to army hospitals as near to their homes as is consistent with availability of beds and facilities for specialized treatment.

WOMEN MEDICAL AND SURGICAL TECHNICIANS NEEDED BY ARMY

Women Medical and Surgical Technicians are needed by the Medical Department of the Army. According to a plan just announced, women who are high school graduates and who have completed at least six months' training in a school of nursing or who have a certificate of graduation from a Red Cross Nurses Aide course will be enlisted in the Woman's Army Corps. After the completion of basic training women will be given additional medical and surgical technical training at Camp Atterbury, Indiana.

ARMY AWARDS AND COMMENDATIONS

Major Sam Gendel

The Legion of Merit Award was recently presented to Major Sam Gendel at Torney General Hospital, Palm Springs, Calif., where he is now chief of the general surgery section. The decoration was awarded by the commanding general of the United States forces in the South Pacific for "exceptionally meritorious conduct in the performance of outstanding service while operating a hospital in the South Pacific area." Dr. Gendel graduated from the University of California Medical School, San Francisco, in 1935 and entered the service in 1940. In 1942 Dr. Gendel established a field hospital on a South Pacific Island with only partially trained personnel to erect buildings, install equipment and act as nurses and technicians. He served with conspicuous success for fifteen months at this post, where his initiative, energy, sound judgment and personal example not only inspired the hospital personnel but contributed to the morale of the entire force. He gave freely of his time in treating the sick among the native population, thereby cultivating friendly relationships which were of great benefit to the force which he served.

Captain Archibald M. Adams

Capt. Archibald M. Adams, formerly of Lima, Ohio, was recently awarded the Soldier's Medal in Italy for exceptional heroism over and beyond the call of duty. The citation reads: "For heroism at great risk of his own life on observing an Allied fighter aircraft crash and burst into flames, Flight Surgeon Capt. Archibald M. Adams rushed to the scene and, heedless of intense heat, exploding ammunition and imminent danger of the aircraft exploding, made his way to the cockpit, freed the unconscious pilot and carried him to safety. By his courage and heroism in risking his life to save the life of another, this man has reflected great credit on himself and the Armed Forces of the United States of America." Dr. Adams graduated from the University of Cincinnati College of Medicine in 1934 and entered the service in May 1942.

Major E. Aaron Pushkin

Major E. Aaron Pushkin, formerly of West Hempstead, N. Y., was recently awarded the Soldier's Medal. The citation accompanying the award stated that "On Feb. 8, 1944 near Auburntown, Tenn., an army truck overturned in a ditch by the roadside, pinning ten soldiers under it. There was great danger that the water flowing through the ditch would cause the vehicle to sink into the mud and kill all of them. Voluntarily and at the risk of his life he crawled under the truck, administered morphine to a number of the men and assisted in their removal." Dr. Pushkin graduated from the medical College of Virginia, Richmond, in 1937 and entered the service Sept. 26, 1940.

Captain Arthur Shainhouse

The Silver Star was awarded to Capt. Arthur Shainhouse, formerly of Brooklyn and now stationed in Italy, on June 10. The citation accompanying the award read "Capt. Arthur Shainhouse, medics, Brooklyn, led aid men on two occasions forward under heavy fire to the assistance of another organization. He gave medical attention to all wounded and made sure they were evacuated before returning to his aid station. Many lives were saved by his actions." Dr. Shainhouse graduated from Dalhousie University Faculty of Medicine, Halifax, Nova Scotia, in 1941 and entered the service July 27, 1942.

Captain Charles B. Skinner

Posthumous award of the Soldier's Medal has been made to Capt. Charles B. Skinner, formerly of New York. The citation read "During a training demonstration March 23, 1944 a soldier fell into the torrent of an icy mountain river in Blackwater Canyon near Davis, W. Va. Captain Skinner, with utter disregard for his own safety, lost his life in attempting to rescue the soldier from the turbulent waters." Dr. Skinner graduated from Columbia University College of Physicians and Surgeons, New York, in 1941 and entered the service Aug. 17, 1942.

MISCELLANEOUS

REORGANIZATION OF THE COMMITTEE
ON MEDICAL RESEARCH

Dr. Chester S. Keefer has been appointed Medical Administrative Officer of the Committee on Medical Research, and several divisions and a records section have been established. The titles of the divisions and the names of their heads are indicated. Dr. Keefer, the chiefs of the newly established divisions and the head of the records section have been assured that the entire organization of the Office of Scientific Research and Development stands ready to aid them and that every possible assistance will be extended to them in the conduct of their affairs

Medical Administrative Officer: Dr. C. S. Keefer, 2101 Constitution Avenue N.W., Washington, D. C.

Division of Medicine: Dr. E. Cowles Andrus, chief, 2101 Constitution Avenue N.W., Washington, D. C.

Division of Surgery: Dr. John S. Lockwood, Chief, University of Pennsylvania Medical School, Philadelphia.

Division of Aviation Medicine: Dr. Detlev W. Bronk, chief, Johnson Foundation, Maloney Clinic Building, 36th and Spruce streets, Philadelphia.

Division of Physiology: Dr. J. T. Wearn, chief, 2101 Constitution Avenue N.W., Washington, D. C.

Division of Chemistry: Dr. M. C. Winternutz, chief, Yale University Medical School, 333 Cedar Street, New Haven, Conn.

Records Section: Dr. K. B. Turner, chief, 630 West 168th Street, New York.

Director: V. Bush.

HOSPITAL SHIPS FOR CONVOYS

Floating hospitals will soon be going to sea as part of America's regular convoy escorts. Recent Navy trial runs of the PCE (R) 853 (patrol craft escort, rescue) were made in Lake Michigan. The vessels contain bunks for 57 men and have complete hospital facilities, including a doctor, operating table, dispensary and x-ray machines and are being built by the Pullman-Standard Car Manufacturing Company, Chicago. The vessels will save many men the ordeal of long hours at sea without adequate medical attention. Like other PCE craft, these rescue ships are manned by 7 officers and 100 men. In addition to their rescue work these craft make excellent vessels for following up landing craft in invasions.

MEDICAL AID MAN AWARDED
SILVER STAR

Pfc. Russell L. Horn, formerly of McKinney, Texas, and now a medical aid man attached to a field artillery observation battalion, has been awarded the Silver Star for gallantry in action and for his courage under fire. The action that brought the award occurred in Italy in January. Although the enemy was firing a sustained barrage, Private Horn dressed the wounds of his injured comrades and directed their evacuation. He refused to accept medical aid for himself and leave the area until he had made certain that all other injured had been rescued.

REHABILITATION CENTERS FOR U. S.
MERCHANT MARINES

The Office of War Information recently announced that more rapid certification of disabled seamen and officers of the U. S. Merchant Marine to vocational rehabilitation centers has been arranged by the War Shipping Administration. Disabled men who received their disability in line of duty may receive surgical and medical treatment, hospitalization, therapeutic treatment, artificial appliances, vocational guidance and training, maintenance during training and placement at federal expense. Speeding up of the procedure by which disabled seamen obtain rehabilitation benefits was made possible through the Service Division of WSA. Applications are processed by the Service Division and forwarded to the Federal Security Agency. Qualified seamen and officers are then certified by FSA to the man's home state for vocational training and rehabilitation.

Delay previously encountered by a seaman in establishing eligibility for vocational rehabilitation has been eliminated.

The new procedure makes possible the rapid check of a man's record through offices of WSA and the U. S. Maritime Commission. An amendment to the rehabilitation law provided federal funds for vocational rehabilitation training of certain civilians, including seamen and officers of the United States Merchant Marine who proved they were disabled and handicapped in line of duty. WSA officials expect at least 5,000 seamen to apply for certification for vocation rehabilitation within the next few months.

PUBLIC HEALTH UNDER HITLER

L'Action française of March 10, 1944 (France) states that though it is difficult to draw up statistics on abortions the figure for the whole country is probably 1,000,000, compared with the 500,000 claimed by overoptimistic sociologists. Among the best means of fighting abortion, apart from legislative measures, there is antepartum allowance, which has already been introduced by private initiative in three factories. In the first factory the number of births rose from two during the twelve months preceding the introduction of antepartum allowances to eight during the twelve months following; in the second factory from five to eight and in the third from four to eight. During the same period the ratio of the number of births in these factories to the total number of births in the communes where the factories were situated rose from 1.3, 8 and 17 per cent to 8, 17.5 and 50 per cent respectively. Considering these remarkable results, the social committees should endeavor to obtain an extension of the antepartum allowance scheme to all industrial and commercial undertakings without delay.

Vichy Home Service, March 23 (France), broadcast part of a press interview granted by Dr. Ghasset on the question of converting certain watering places into cités sanitaires, as proposed by him at the last council of ministers. "Not only has the war prevented us building new hospitals; it has destroyed some of those we already had. The evacuation of the coastal districts has also reduced the possibility of opening new ones. We now lack 38,000 beds of the 150,000 we had before. Further, a certain number of hospitals have had to be evacuated from threatened towns. We have now to cope with the problem of providing hospital accommodation for from 2,000 to 3,000 sick people. The solution the Council of Ministers has adopted consists in equipping two or three small spas which are well situated and have been carefully selected. Since the war, hydromineral spas have been carrying on on a reduced scale; but the accommodation is there and we can therefore put up sick people who have been evacuated. The powers which I have been given by the Council of Ministers have enabled me to envisage with less anxiety the evacuation of certain hospitals situated in the threatened districts."

HOSPITALS NEEDING INTERNS
AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, July 15, page 795)

MICHIGAN

St. Lawrence Hospital, Lansing. Capacity, 230; admissions, 6,897. Sister M. Assisium, Superintendent (interns).

NEW HAMPSHIRE

Sacred Heart Hospital, Manchester. Capacity, 163; admissions, 2,561. Sister M. Bernardus, R.N., Superintendent (mixed residencies).

NEW JERSEY

Muhlenberg Hospital, Plainfield. Capacity, 330; admissions, 6,136. Mr. John R. Howard Jr., Superintendent (interns, July 1, 1945).

VIRGINIA

DePaul Hospital, Norfolk. Capacity, 245; admissions, 7,512. Sister Inez, R.N., Administrator (2 interns, October 1).

WISCONSIN

St. Mary's Hospital, Madison. Capacity, 225; admissions, 7,065. Sister M. Bernadette, R.N., Superintendent (interns).

ORGANIZATION SECTION

WASHINGTON LETTER

(From a Special Correspondent)

July 17, 1944.

The Cumulative Shortage of Physicians

Cognizance of THE JOURNAL's warning of a cumulative shortage of 2,000 physicians a year in the United States, unless nondeferment policies of National Selective Service and the armed forces are changed, was taken at the Senate Subcommittee on Wartime Health and Education, presided over by Senator Claude Pepper, chairman.

Dr. Alan Gregg, director of the Medical Services Division of the Rockefeller Foundation, said "The time is rapidly approaching, if it is not already here, when, in order to produce 50 to 100 students even approximately adequate in their preparation, many medical schools will stand in serious need of their teachers now in military service; these men should be called back and assigned to duty in training the young military men now in the medical schools."

National danger inherent in a shortage of physicians in coming months and in the postwar period was brought to attention of the witnesses at the hearing through widespread publicity given American Medical Association views on the subject. Washington papers as well as the press of the country gave considerable display to THE JOURNAL editorial which warned of a tremendous number of reductions in graduates after the war unless an adjustment is made.

Emphasis was given to the seriousness of the situation by deans of the District of Columbia medical schools in press interviews, while the hearing on wartime health and education was in progress. They viewed with concern President Roosevelt's acceptance of the Selective Service order banning draft deferment of premedical students beyond July 1. "If deferment is refused of all except the young men now enrolled in medical and dental schools," said Rev. David V. McCauley, S.J., regent of Georgetown University Medical School, "it will be manifestly impossible in and after 1948 to fill even those vacancies in the professional ranks caused annually by death. . . ."

"The postwar period will reflect the loss for years," said Dr. John W. Lawlah, dean of the Harvard Medical School. He went on to say that medical schools had been led to believe that there is an acute shortage of medical men because of the number of Army requests for doctors to be commissioned. It is as important to the total effort, he stated, to train a man as a doctor as to train him to hold a gun. "All the deans feel that this action will make it difficult to recruit sufficient students for training," he said.

The ban will require medical schools to lower the "very high standard" they have tried to maintain, said Dr. Edward G. Reinhard, head of the Biology Department of Catholic University. This university, he pointed out, had lowered premedical requirements from four years of study to less than two.

"A deep concern," over the action taken, was expressed by Dr. Walter A. Bloedorn, dean of George Washington University Medical School.

The three day hearing on wartime health and education was keyed by Senator Pepper's statement that "it is a national tragedy that five million of our young men are unfit for military service at a time when manpower needs of the nation are so critical."

Selective Service is aware of the prevailing need of doctors, Col. Leonard G. Rowntree, chief of its Medical Division, revealed in his testimony. He called the necessary rejection by the armed services of men for combat service a "national disgrace," showing youth of the country to be flabby and soft. He said "Instead of a country of rugged, virile men, we have a lot of 5-D's, defective, disabled, deficient, disordered and diseased." In examination of one tenth of the population for military service, Colonel Rowntree said, "those examinations reveal that the country is ailing and that its youth is flabby and soft. It should have medical attention."

Gen. Lewis B. Hershey, director of Selective Service, testified that many fathers had to be taken into the armed forces because Selective Service had scraped the bottom of the barrel of physically fit single men and married men without children.

Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, suggested a better distribution of hospitals and health centers in the postwar period, pointing out that 1,200 U. S. counties with a population over 15,000 persons have no recognized hospital facilities. He estimated that 419,400 new and replacement beds are needed. His plan for future public health facilities called for erection of "base" hospitals with teaching facilities, centrally located in each state, surrounded by "district" hospitals in smaller, urban areas, and many "health centers" in rural areas. Constant ambulance service would be available for removal of serious cases from health centers to district or base hospitals.

In this vein Vice Admiral Ross T. McIntire, Surgeon General of the Navy, advocated clinics under the direction of the U. S. Public Health Service in each community with diagnostic facilities available for all citizens.

To the U. S. Public Health Service Paul V. McNutt, federal security administrator and chairman of the War Manpower Commission, gave credit for preventing epidemics during the war by scrupulous care in rat proofing and fumigating incoming ships and planes.

Planning for hospitals and medical centers was discussed by Dr. Victor Johnson, secretary of the Council on Medical Education and Hospitals of the American Medical Association, Dr. Claude Munger, chairman of the Council on Government Relations of the American Hospital Association, Dr. Vane M. Hoge, chief of the Hospital Facilities Section of the U. S. Public Health Service, and the health need of veterans by Col. W. C. Menninger, director of the Division of Neuropsychiatry, Medical Corps, U. S. Army, Brig. Gen. Frank T. Hines, administrator of the Veterans Administration and director of reemployment and retraining, Office of War Mobilization, and representatives of the American Legion, Veterans of Foreign Wars and Disabled War Veterans of America.

Members of the subcommittee are Senators Claude Pepper of Florida, chairman, James M. Tunnel of Delaware, Elbert D. Thomas of Utah, Robert M. LaFollette Jr. of Wisconsin and Kenneth S. Wherry of Nebraska.

The War Shipping Administration

One of the less publicized governmental medical departments which has done much to develop new ways of meeting specialized problems of this modern war is the medical service of the War Shipping Administration, of which Dr. Justin K. Fuller is medical director. Now the crew has the benefit of treatment from a pharmacist mate or hospital corpsman—on a cargo vessel he is known as junior assistant purser-pharmacist mate—and the crew lives "to-side amidships," in better ventilated, more comfortable, small group rooms, instead of poorly ventilated community forecables that were damp, evil smelling and uninviting.

Dr. Fuller has found new opportunities presented through the war for safeguarding the health of merchant seamen, which of course means improved efficiency of the Merchant Marine. This is important, because on the Merchant Marine depends success of far flung battle forces depending solely on long supply lines. Outstanding development in medical service for the Merchant Marine is acceptance of merchant seamen in army and navy hospitals and dispensaries abroad, and repatriation of disabled seamen on hospital and other ships of the Army and Navy. Another significant service is provision of medical advice and social service help by officers of the Recruitment and Manning Organization of WSA and the United Seamen's Service for merchant seamen repatriates when they reach United States ports.

Maritime law requires that a medical officer be included in the crew of ships carrying more than thirty passengers, and

few ships carrying less than this number have had a doctor aboard, as a result. Until recently ships in the latter class have usually been without medical personnel. With bombing and strafing a constant hazard for the merchant ships WSA developed a hospital corps school at the Maritime Service Training Station, Sheepshead Bay, Brooklyn. The first class of 300 was graduated early in 1943, and it is expected that by the end of 1944 every merchant vessel operating under control of the agency will have a graduate of this school aboard. Other safeguards for merchant seamen include inspection of ship plans and ships under construction by Public Health Service sanitary engineers. A sanitary code laid down by the Public Health Service governs, among other things, taking on of water, elimination of cross connections in plumbing systems, disinfection and the disposal of sewage and garbage at sea, inside harbors and when tied at docks.

Ships' personnel have found helpful the new centralized supervision of ships' medicine chests and uniform provision of necessary medical supplies and equipment, including dried plasma, DDT powder and penicillin. Medical standards for enrolment have been determined with great care, which is said to have been reflected in a higher physical caliber of the 50,000 odd trainees graduated from training stations and ships of the

Maritime Service. Annual as well as "sign on" medical examinations are required.

Rehabilitation of disabled seamen is a part of the WSA medical problem. Seamen unable to return to sea are referred to the Federal Security Agency. Although exposed to the same risks as the armed forces, the merchant seamen is not as well protected by compensation, war risk insurance, certain medical benefits and rehabilitation. Casualties during periods of heavy shipping losses were greater than in any other group. Legislation is now under advisement aimed at correcting this situation.

Dr. Fuller is endeavoring to provide the best possible medical service for merchant seamen through the use of over-all activities of the Public Health Service, augmented by specialized facilities of the Hospital Divisions, Mental Hygiene Divisions, Venereal Division, Dental Section and Sanitary Engineering Section. His office as medical director of WSA operates as a unit of the Public Health Service out of the office of the deputy administrator for labor relations, manning, training and recruitment. Naturally, cooperation of medical services of other government and private agencies is solicited and used to the fullest extent. It is felt in responsible circles here that the program has justified itself.

WOMAN'S AUXILIARY

OFFICERS OF THE WOMAN'S AUXILIARY FOR THE COMING YEAR

Newly elected officers of the Woman's Auxiliary to the American Medical Association are as follows: Mrs. David W. Thomas, Lock Haven, Pa., president; Mrs. Jesse D. Hamer, Phoenix, Ariz., president-elect; Mrs. Eustace A. Allen, Atlanta, Ga., first vice president; Mrs. J. H. Hornberger, Roebbling, N. J., second vice president; Mrs. A. H. Duemling, Fort Wayne, Ind., third vice president; Mrs. David Berg, Helena, Mont., fourth vice president; Mrs. Arthur A. Herold, Shreveport, La., constitutional secretary; Mrs. Harold F. Wahlquist, Minneapolis, treasurer.

Arizona

The Maricopa auxiliary of Arizona recently launched a drive for discarded woolen materials to be used for the Kenny treatment of poliomyelitis. Other counties were asked to help, and the plan was presented at the annual state convention, which was held in Phoenix, April 14-15.

Arkansas

Mrs. B. L. Ware was elected president of the auxiliary of the Sebastian County Medical Society of Arkansas at a luncheon meeting of the auxiliary recently. She succeeds Mrs. W. F. Rose.

The Pulaski County auxiliary held its regular meeting in March with the topic "Food and Its Importance to Good Health" as the subject of the evening. A dinner honoring the husbands was given March 31.

Colorado

The Larimer County auxiliary of Colorado has had an evening meeting and a luncheon meeting and been the guests of their medical society at a dinner. The medical society also entertained the wives of the men in service. This auxiliary has given a two years subscription to the *Reader's Digest* to the Larimer County Hospital. Dr. J. D. Carey and his daughter gave the hospital an oxygen tent and machine in memory of Mrs. Carey.

Iowa

Iowa has fifteen county auxiliaries, with a membership of 316. The Iowa auxiliary has two to four pages each month in the state medical journal, and reprints are mailed to each member. Mrs. K. M. Chapler, state chairman of press and publicity, has placed ten "doctors at war posters" in public institutions.

Michigan

The Ingham County auxiliary of Michigan held its Guest Day at the home of Mrs. L. M. Snyder recently. One hundred dollars was voted to the Red Cross. Dr. H. G. Batson spoke on "Trends in Modern Therapy." The St. Claire County auxiliary held its March meeting at the Chateau in Port Huron. Dr. J. A. Dunn spoke on "The Latest Developments in Food."

Minnesota

Kandiyohi-Swift-Meeker County Medical Auxiliary was reorganized at a meeting held recently at the home of Mrs. Richard Anderson in Willmar. There were fifteen present, and Mrs. Hans Johnson, Kerhoven, was elected president.

The Hennepin County auxiliary held an all day health institute March 3. Three hundred persons including presidents of all of Minnesota's clubs attended. Dr. Walter C. Alvarez of the Mayo Clinic spoke on "Why Women Are Nervous." A film entitled "Fight Syphilis" and another "Fighting Tuberculosis in Hennepin County" were shown. Dr. W. A. O'Brien spoke on "Tropical Diseases: A Postwar Problem." Other talks were given including a talk on the Wagner-Murray-Dingell bill.

Missouri

At a recent meeting the Missouri auxiliary elected Mrs. J. B. McCubbin of Fulton president and Mrs. Harry Gilkey of Kansas City president-elect. A breakfast honoring the past president and a luncheon were the only social events. An address was given by Dr. W. W. Bauer, Director of the Bureau of Health Education of the American Medical Association.

Ohio

At a meeting of the Woman's Auxiliary to the Toledo Academy of Medicine recently the program consisted of brief, informal talks by members whose husbands are in service; New Guinea, South Pacific, Hawaii, England, New Hebrides, Aleutians and Iran were the countries discussed.

Oklahoma

The membership report for Oklahoma is Tulsa 133 members, Oklahoma City 114 members, Ada 14 members, Shawnee 16 members and Norman 18 members.

West Virginia

West Virginia held its twentieth annual meeting May 15-16 at Wheeling. Capt. W. M. Sheppe (MC), U.S.N.R., gave an address on "Recent Advances in Medical Care of Naval Personnel." Mrs. Eben J. Carey, National president, was one of the honor guests at the luncheon.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Hospital Receives Physician's Equipment.—The late Dr. Charles S. Hale, who died in March at Cisco, Texas, bequeathed all his medical and surgical equipment to St. Bernard's Hospital, Jonesboro. Newspapers May 1 reported that the hospital had already received the equipment.

CALIFORNIA

Venereal Disease Control Institute.—An institute on community control of venereal diseases opened at the University of California, Los Angeles, July 17, to continue for three weeks. The institute is in charge of Dr. Nels A. Nelson, Baltimore, deputy state health officer, bureau of communicable diseases, Maryland State Department of Health.

Personal.—Morris A. Stewart, Ph.D., associate professor of parasitology, University of California, Berkeley, is to spend three months in Bolivia with headquarters in Santa Cruz. *Science* reports that Dr. Stewart's work on parasitic diseases and means for their control will be used by the Bolivian government in its program for the economic development of the country.

Medical Missionaries Return to India.—Drs. Arthur E. Coyne, Takoma Park, Md., and Theodore R. Flaiz, Watapo, Wash., medical missionaries, will return to Surat, India, according to the *Medical Evangelist*. After his graduation at the College of Medical Evangelists, Loma Linda, in 1918, Dr. Coyne served six years in India. He later served as dean of the Los Angeles division of the college. Subsequently he has been serving in various hospital positions. Dr. Flaiz was in India from 1920 to 1932. After his graduation at the college in 1938 he served in the administrative offices in the Los Angeles division. Both physicians plan to travel with their wives to India by way of Portugal.

CONNECTICUT

Pharmaceutical Meeting.—"Does the American Public Want Prepaid Medical Care?" was the title of a paper by Dr. Creighton Barker, executive secretary, Connecticut State Medical Society, before the sixty-eighth annual meeting of the Connecticut Pharmaceutical Association, New Haven, June 22.

Memorial Issue to Dr. Trask.—The *Yale Journal of Biology and Medicine* devoted its May issue to the memory of the late Dr. James Dowling Trask, who at the time of his death in 1942 was associate professor of pediatrics at Yale University School of Medicine, New Haven.

Personal.—Dr. John S. Lockwood, acting director, Harrison department of surgical research, University of Pennsylvania School of Medicine, Philadelphia, has been named associate professor of surgery at Yale University School of Medicine, New Haven, effective July 1.—Dr. Edgar C. Yerbury has been appointed superintendent of the Connecticut State Hospital, Middletown, to succeed Dr. Roy L. Leak, who is resigning after holding the position since April 1922.—George R. H. Nicholson, headmaster of Kingswood School, West Hartford, was elected president of the Connecticut Society for Mental Hygiene at its recent annual meeting and Dr. Paul P. Svett, Bloomfield, was chosen vice president.

FLORIDA

Dr. Rowlett Resigns from State Board.—Dr. William M. Rowlett, Tampa, secretary of the Florida State Board of Medical Examiners since 1918, has resigned, effective July 15. Dr. Rowlett, who graduated at the Atlanta College of Physicians and Surgeons in 1909, served as president of the Florida Medical Association in 1939.

Special Society Election.—Alvin P. Black, Ph.D., professor of agricultural chemistry, University of Florida, Gainesville, was recently chosen president of the Florida Public Health Association. Other officers include Drs. Wieland W. Rogers, Jacksonville, E. Lucille J. Marsh, Tallahassee, vice presidents, and Edward M. L'Engle, Jacksonville, secretary-treasurer.

GEORGIA

Personal.—Dr. Abram J. Davis, Swainsboro, has resigned as health commissioner of Emanuel County to accept a similar position in Richmond County.—Dr. Charles L. Ridley, Macon, health officer of Bibb County, has been appointed chairman of the state department of public health.

State Medical Election.—Dr. Ralph Hill Chaney, Augusta, was chosen president-elect of the Medical Association of Georgia during its recent annual meeting in Savannah, May 9-12, and Dr. Cleveland Thompson, Millen, was installed as president. Dr. Edgar D. Shanks, Atlanta, is the secretary. The 1945 annual meeting will be held May 8-11 in Macon. Dr. Arthur W. Allen, Boston, delivered the Abner Wellborn Calhoun Lecture at the meeting, May 10, on "Gastric and Duodenal Ulcers."

IDAHO

Personal.—Dr. Virgil C. Belknap, Nampa, recently completed fifty years in the practice of medicine.—Dr. Jay C. Miller, Grand Island, Neb., has been appointed director of the Kootenai County Health Unit, succeeding Dr. Herbert L. Newcombe, Coeur d'Alene, who has resigned to enter private practice. Dr. Miller will be located at Coeur d'Alene.

ILLINOIS

Changes in State Department of Health.—Dr. Alexander William Burke, Chicago, was recently named acting chief of the state division of tuberculosis control in addition to carrying on his work as director of health district number ten, consisting of five counties. He fills the vacancy that occurred when Dr. Edward K. Steinkopff resigned to become medical director of the Pinehurst Sanatorium, Janesville, Wis. Dr. Henrietta M. Herbolzheimer, Chicago, has been appointed acting chief of the state division of maternal and child hygiene. Dr. Hugo V. Hullerman, Chicago, chief of the division, resigned to become secretary of the council on professional practice of the American Hospital Association (*THE JOURNAL*, June 17, p. 503). Dr. George G. Taylor, Chicago, has been appointed chief of the state division of venereal disease control, effective July 1, succeeding Dr. Herman M. Soloway, Chicago, who has resigned to reenter private practice. Dr. Soloway will continue with the department on a part time basis, serving as venereal disease control officer in the division of industrial hygiene.

Chicago

Granville Bennett Appointed Head of Pathology at Illinois.—Dr. Granville A. Bennett, professor and head of the department of pathology at Tulane University of Louisiana School of Medicine, New Orleans, has been appointed to a similar position at the University of Illinois College of Medicine.

Memorial Lecture to Honor Sanford Gifford.—The Chicago Ophthalmological Society is planning to establish a memorial in honor of the late Dr. Sanford R. Gifford in the form of a lecture on an ophthalmological subject to be delivered annually before the society. In an announcement the society states that it is hoped that many friends of Dr. Gifford will take this opportunity to contribute to this lecture fund in honor of the memory of one who made such noteworthy contributions to ophthalmology as an author, a clinician and an inspiring teacher. Contributions may be sent to Dr. William A. Mann, secretary of the Chicago Ophthalmological Society, 30 North Michigan Avenue.

IOWA

State Medical Election.—Dr. Ransom D. Bernard, Clarion, was chosen president-elect of the Iowa State Medical Society at its recent annual meeting and Dr. Maurice C. Hennessy, Council Bluffs, was installed as president. Dr. Robert L. Parker, Des Moines, is secretary. The next annual session will be held in Des Moines, April 19-20, 1945.

Narcotic Violation.—Dr. Chester F. Cashman, Hartley, pleaded guilty in the U. S. District Court at Sioux City, May 26, to a violation of the federal narcotic law. Dr. Cashman was sentenced to serve a term of imprisonment for three years. Sentence was suspended and he was placed on probation for a similar period, according to the U. S. Bureau of Narcotics.

KANSAS

Mr. Ebel Named Executive Secretary of State Society.—Mr. Oliver Ebel, Wichita, has been appointed executive secretary of the Kansas Medical Society, effective July 1. Mr. Ebel resigned a similar position with the Sedgwick County Medical Society to accept the new appointment.

MARYLAND

Conference on Cancer.—Section C of the American Association for the Advancement of Science will sponsor a conference on cancer at Gibsons Island, July 31-August 4. Among the speakers will be:

July 31

Dr. Albert Claude, New York, Topography of Cell Function.
Drs. Edward W. Shrigley, Madison, Wis., and Francesc Duran-Reynals, New Haven, Conn., The Biology of Virus Induced Tumors.
Alfred Taylor, Ph.D., Austin, Texas, Virus Production of Mammalian Tumors.
William Ray Bryan, Ph.D., Bethesda, Md., and Herbert Kahler, Ph.D., Virus Studies with Newer Technics.

August 1

John J. Bittner, Ph.D., Bar Harbor, Maine, Inciting Influences in the Etiology of Mammary Cancer in Mice.
Howard B. Anderson, Sc.D., Bethesda, The Milk Factor in Breast Cancer in Mice.
Mary E. Maver, Ph.D., Washington, D. C., Serology of Tumor Cathesins.
Dr. Jacob Furth, New York, The Site and Time of Malignant Change in Leukemia of Mice.

August 2

Frank H. J. Figge, Ph.D., Baltimore, The Relationship of Pyrrole Compounds to Carcinogenesis.
Louis F. Fieser, Ph.D., Cambridge, Mass., Discussion of Hydrocarbon Carcinogenesis.
Wilton R. Earle, Ph.D., Washington, Production of Malignancy in Vitro.
Dr. Harry S. N. Greene, New Haven, The Occurrence of Dependent and Autonomous Phases in the Development of Cancer.

August 3

Roger J. Williams, Ph.D., Austin, B Vitamins and Cancer.
Jesse P. Greenstein, Ph.D., Silver Spring, Enzymes and Cancer.
Dr. Harold P. Rusch and Carl A. Baumann, Ph.D., Madison, The Prevention of Experimental Liver Tumors by Dietary Means.

August 4

Heron O. Singher, The Effect of Inhibitory Agents on Normal and Malignant Tissue.
Dr. Curtis M. Flory and Dr. Furth, New York, Chemotherapeutic Studies on Leukemia.

MASSACHUSETTS

Dr. Dubos Returns to Rockefeller Foundation.—René J. Dubos, Sc.D., has resigned as George Fabyan professor of comparative pathology and tropical medicine, Harvard Medical School, Boston, to return to the Rockefeller Institute for Medical Research. Dr. Dubos resigned from his previous appointment at the institute as member on June 30, 1942 to accept the Harvard position.

MICHIGAN

Earl Burbidge Appointed Medical Director of Frederick Stearns and Company.—Dr. Earl L. Burbidge, Philadelphia, for the past three years with the medical research division of Sharp & Dohme, has been appointed medical director of Frederick Stearns and Company, Detroit; effective June 15. Dr. Burbidge graduated at the Washington University School of Medicine, St. Louis, in 1939.

Prevalence of Mosquitoes.—Six members of the U. S. Public Health Service are conducting a mosquito survey in Michigan to determine the prevalence of various mosquitoes. Adult mosquitoes and larvae from every county in Michigan will be collected and sent to the state health department headquarters in Lansing, where they will be studied by a member of the staff. *Public Health News* states that no effort will be made to cut down on the number of mosquitoes this summer but, if the study shows that they are a hazard to health in certain sections, control measures will be undertaken later.

Personal.—Dr. Leverett S. Woodworth, Detroit, was chosen president of the Michigan Hospital Association at its recent meeting in Chicago. —Dr. James R. Jeffrey Jr. has been named temporary superintendent of the Battle Creek Sanitarium, Battle Creek. —Dr. William P. Derck, Marysville, was honored at a dinner meeting of the St. Clair County Medical Society in recognition of his completion of fifty years in the practice of medicine. —Dr. Rudolph Robert Lang has resigned his commission in the U. S. Public Health Service. The *Bulletin* of the Ingham County Medical Society is reported to have said that Dr. Lang resigned because the public health service allows osteopaths to be commissioned.

MINNESOTA

Hospital Association Receives Award.—The Minnesota Hospital Association on May 14 received a plaque from the American Hospital Association for the "best hospital public education program in the nation for 1942 and 1943." Dr. Thomas E. Broadie, Ancker Hospital, St. Paul, was inducted into the presidency and Miss Dina Brenness, R.N., Glenwood Community Hospital, Glenwood, was named president-elect.

State Board Abandons Reciprocal Relations with Illinois.—The Minnesota State Board of Medical Examiners on May 12 acted to terminate reciprocal relations with the state of Illinois. According to the Minnesota board the action was the result of a refusal of the Illinois authorities to recognize a license issued by the Minnesota board to one who was the holder of a bachelor of medicine degree at the time of the examination rather than a doctor of medicine degree. It was stated that the action of the board is a mandatory provision of the Minnesota law.

License Revoked.—On May 12 the license to practice medicine of Dr. Orel Anson Kibbe was canceled by the Minnesota State Board of Medical Examiners because of his plea of guilty in the district court of Hennepin County, March 8, to a charge of performing an illegal operation. At the time he pleaded guilty Dr. Kibbe surrendered in open court his medical license and basic science certificate with a written request that they be canceled by the state board of medical examiners and the state board of examiners in the basic sciences (*THE JOURNAL*, June 10, p. 440).

Medical Art Show.—The Minneapolis Public Library on June 19 opened its first medical art display. Included in the exhibit are the works of a number of medical illustrators, including Russell Drake, Mayo Clinic; Jean Hirsch, head of the Medical Art Shop, University of Minnesota; Gladys McHugh, University of Chicago; Ralph Sweet, University of California Medical Center; Elizabeth Brodel of the Society of the New York Hospital; the Medical Fantasies of Daisy Stilwell, Modern Medicine, and the drawings of the late Dr. Harry B. Wilmer for his book *Huber the Tuber*. The exhibit includes a group of books showing the earliest examples of medical illustrations lent by the Surgeon General's Library in Washington and two Vesalius volumes, a 1783 edition by Shirley P. Miller, Ph.D., of the University of Minnesota and the 1934 edition from the library of Modern Medicine. The display also includes a group of prints from the art department of the public library. The exhibit will be open until July 20.

MISSOURI

Prepayment Medical and Surgical Care.—Medical, surgical, obstetric and fracture care of hospital patients will be included in a recently approved prepayment medical and surgical care plan of the Missouri State Medical Association. A committee was named by the association to launch the plan immediately and consists of Drs. Carl F. Vohs, St. Louis, chairman; Ira H. Lockwood, Kansas City; Marcus Pinson Neal, Columbia; Howard B. Goodrich, Hannibal, and Frank L. Feierabend, Kansas City. The new program will be known as the Missouri Medical Service, Inc., and will be operated on a straight cash indemnity basis and will not interfere with the physician's normal fee. According to the state medical journal the policy is to state that the indemnification amount will not in any way relate to the physician's fee and the amount paid will be considered by the patient as a part payment of the fee. The plan is to be available to all residents of the state, and every physician will have opportunity to cooperate.

NEW YORK

New Division of Product Development at Winthrop.—The establishment of a division of product development at Winthrop Chemical Company has been announced by Dr. Theodore G. Klumpp, president. The division, with headquarters at the company's plant at Rensselaer, will explore the postwar commercial potentialities of products now being supplied by Winthrop to the armed forces as well as new products developed in the company's laboratories.

Hospital News.—The Northern Westchester Hospital, Mount Kisco, has received \$50,000 from the Reader's Digest Association for the construction and equipment of a new emergency department and board and conference rooms on the first floor of the new south wing of the hospital, which is planned under a \$500,000 building program. Mr. and Mrs. Carl Tucker have subscribed more than \$31,000 to build and equip a new pediatrics department to occupy the first floor of an addition on the present northeast wing of the hospital. Mr. Tucker is president of the hospital and general chairman of the campaign committee.

Dental Examinations Start in Caries-Fluorine Demonstration.—The New York State Department of Health recently began the dental examinations of school children in the city of Newburgh, which, with the city of Kingston, is collaborating in a long range demonstration to determine the practicability of mass protection against dental caries by adding fluoride to public drinking water supplies. These communities were selected as study and control areas, respectively,

after careful consideration of many sections of the state which might be suited to such a demonstration (THE JOURNAL, May 6, p. 73). Dental inspections of about 1,000 children in various age groups of 5 to 14 years will be made. The purpose is to obtain, at the outset of the demonstration, a dental caries index which will serve as a basis for comparison with the terminal figures at the end of ten years, the length of time which must elapse before the full benefits of the water treatment are realized. According to *Health News* it is also planned to make a pediatric investigation of a representative sample of the child population, including a general physical examination, urinalysis and x-ray films of the long bones and centers of ossification. Procedures for these examinations are now being prepared, and when they are completed a substantial portion of the child population will be examined. All examinations will be made before the fluoride is added to the water supply.

New York City

Floating Hospital Opens Season.—On July 3 the St. John's Guild floating hospital, the *Lloyd I. Seaman*, began its first seasonal excursion up the Hudson carrying physically handicapped children and their mothers. The excursions will continue daily except Sunday until September 2. The excursions are financed by about 330 organizations. The trained staff on the floating hospital includes two physicians and a dentist, four registered nurses and five practical nurses. Physically handicapped children and those with heart disease comprise the patients.

New Bureau of Medical Education.—The New York Academy of Medicine has created a bureau of medical education to serve all physicians interested in furthering their medical education, but particularly the physicians returning from war and the increasing number of foreign physicians who arrive in New York for postgraduate instruction and training. The bureau, organized by and operated under the supervision of the committee on medical education of the New York Academy of Medicine, will render its services without charge. It plans to publish announcements of postgraduate medical courses conducted by the universities and the hospitals of New York City. Thirty-three of the leading hospitals have been invited to collaborate in this work. A group of advisers representing the special fields of medical practice has been appointed to supervise the work of the bureau.

Changes at Long Island College of Medicine.—Dr. William Dock, professor of medicine at the University of Southern California School of Medicine, Los Angeles, has been appointed to a similar position and head of the department at the Long Island College of Medicine, Brooklyn. This is the first time in the eighty-three years history of the college that it has had a full time professor of medicine. Edward Muntwyler, Ph.D., professor of experimental biochemistry, Western Reserve University School of Medicine, Cleveland, has been appointed professor and executive officer of the department of biochemistry, at Long Island and James B. Hamilton, Ph.D., associate professor of anatomy, University of Missouri School of Medicine, Columbia, professor and executive officer of the department of anatomy. These appointments fill the vacancies that occur with the retirement of Dr. Tasker Howard, professor and executive officer of the department of medicine; Edgar D. Congdon, Ph.D., professor and executive officer of the department of anatomy, and Matthew Steel, Ph.D., professor and head of the department of biochemistry. Dr. Howard has been connected with the school since 1910, Dr. Congdon since 1932 and Dr. Steel since 1914. Dr. Fred L. Moore, who for the past two years has been director of the division of public health studies of the Commonwealth Fund, has been appointed to a newly created post as professor of social and environmental medicine in the department of preventive medicine and community health at the medical school. Before joining the Commonwealth Fund, Dr. Moore had held a professorship in the department of preventive medicine and community health. In his new capacity he will also serve as medical director of the Polhemus Clinic of the Long Island College Hospital, in charge of the outpatient department of the hospital. Other changes on the faculty effective July 1 include:

Dr. Elberton J. Tiffany promoted to associate professor of the department of bacteriology.

Dr. Francis E. Mallon promoted to assistant clinical professor in the department of ophthalmology.

Drs. Charles A. Hargitt, Edwin Clifford Place and Michael J. Buonaguro newly appointed as assistant clinical professors in the department of surgery.

promoted to clinical professor in the department of surgery.

bro promoted to assistant clinical professor in the department of surgery.

NORTH CAROLINA

Poliomyelitis.—Serious outbreaks of infantile paralysis in western North Carolina have called out the emergency services of the National Foundation for Infantile Paralysis, which has announced it had advanced \$50,000 for epidemic relief and sent a staff of doctors, nurses and physical therapy technicians into the region. There were 264 cases of poliomyelitis reported in the state through July 10. Through the National Foundation, it was announced, doctors, nurses, physical therapists and supplies and equipment were sent from many parts of the country into the affected areas. It is almost miraculous, according to Dr. Don Gudakunst, how the people have worked in setting up emergency hospitals almost overnight. This was particularly true in Catawba County, where a score of cases were being reported daily and there were insufficient hospital facilities in the state to receive the case load. The National Foundation's state representative, Clarence H. Crabtree, immediately investigated the situation. He and Dr. A. Gaither Hahn, Catawba County chapter chairman of the National Foundation, suggested that the Lake Hickory Fresh Air Camp be converted into an emergency hospital. That same afternoon the children who were attending the camp were en route to their homes, and the camp facilities were made available. Dr. Hahn called Col. Frank Wilson at the Moore General Hospital at Black Mountain, a convalescent hospital for soldiers, who agreed to lend 40 beds. Working throughout the night Crabtree, Dr. Hahn and Dr. Harold C. Whims, local health officer, arranged for trucks to transport the beds, and carpenters were summoned to make the necessary alterations. Three days later the emergency hospital admitted its first patients. The cases continued to arrive, including one needing immediate treatment in a respirator, Dr. Gudakunst stated. Miss Beatrice Cobb, county chairman and head of the National Foundation's Women's Division in nearby Burke County, was told of the situation. Half an hour later the vitally needed respirator was in operation at the emergency hospital. Another patient required similar treatment. A call was placed to Gettys Guille, chairman of the National Foundation's Rowan County chapter, and a respirator was secured immediately. Since that time two more respirators have been sent into the area by the foundation from its Boston depot. The case load increased so rapidly that another appeal was made to Colonel Wilson for two army hospital tents. Additional beds were furnished, and electricians and carpenters worked half the night to set up the tent platforms and accessory equipment, the Nutton Bonous Lumber Company donating the lumber. The next morning 10 soldiers and 15 laborers, driven by a Wac, arrived at the camp and pitched in. The Wac promptly changed into coveralls, helped carry lumber, and aided in the construction of the tents. Dr. Gudakunst's report stated that army personnel remained at the camp a week, constructing ramps and other facilities. Meanwhile the Red Cross had recruited nurses, who were instructed in their special duties by two supervising nurses from the state health department. Kitchen and dining room plans were drawn up overnight by Q. E. Herman, a local contractor, who has earned the nickname of "kaiser" because he seems to do the impossible almost immediately. He set a crew of carpenters working day and night shifts, and four days later this part of the building was in use. Convicts from the state prison aided also. Several score helped clear the grounds and dug ditches for enlarged sewage disposal plants. The water company installed a 3 inch water main to the camp 3 miles from town and then turned over an old 1 inch line to the gas company for piping in gas. The telephone company speedily installed trunk lines and switchboard. Additional sheets were needed, and an order for fifty was placed with one store, which immediately sent one hundred without charge. The supply of children's cribs was exhausted, so carpenters built new ones as fast as they were called for. The Hickory Fire Department installed a 3 inch main overnight, stationed a chemical truck on the grounds and placed a twenty-four hour fire patrol on watch. Epidemiologists, working under research grants from the National Foundation for Infantile Paralysis, are in the stricken area searching for clues as to the manner of spread of the disease. Among the research investigators are Drs. Joseph Melnick, Robert Ward, Dorothy Horstmann, from Yale University, and Dr. Thomas Francis Jr. of the University of Michigan. Two others, Drs. Kenneth Maxcy and Howard Howe of Johns Hopkins University School of Medicine, Baltimore, will arrive shortly.

OHIO

Dr. Baker Retires as Chairman in Anatomy.—Rollo C. Baker, Ph.D., chairman on leave of the department of anatomy of the Ohio State University College of Medicine, Columbus, will retire at the close of the academic year. He will retain his position as acting dean of the college of medicine.

RHODE ISLAND

The Charles F. Gormly Fund.—At a meeting of the house of delegates of the Rhode Island Medical Society, May 18, authorization was given to the purchase of a number of books on legal medicine for the library of the society from funds designated the Charles F. Gormly Fund. Each book will carry a plate showing that it belongs to the Charles F. Gormly collection. The fund was created with the balance of money left from the commissioning of a portrait of Dr. Gormly hung in June 1943. Dr. Gormly was the immediate past president of the state medical society at the time of his death June 16, 1943. The portrait was executed to mark the years of service of Dr. Gormly to the state medical society, and the collection of books on legal medicine will serve to memorialize one of his main interests. While there is a possibility that friends of Dr. Gormly might in time contribute toward the fund to continue it, the present plans of the library committee are to purchase new books from time to time until the present fund is expended.

Department of Medical Sciences Created at Brown University.—A department of medical sciences has been created at Brown University, Providence, it was announced July 12. Drs. Charles A. McDonald and Alexander M. Burgess, associated with the division of university health for some time, have been appointed professors of health and hygiene in the new department, which hopes to perform a number of important functions within the university and in the relationships of the university to the medical profession and hospitals of the community. It was stated that the new department will assist the university in assuming a larger responsibility for the general education of its students in matters of health. It is designed in part to meet the needs and desires of recent graduates of medical schools whose postgraduate studies in certain specialized fields of medical science have been interrupted by war service. The announcement stated that the university plans to cooperate in the development of programs of postgraduate study and research for members of the resident staffs of the hospitals of the community.

WEST VIRGINIA

Society Offers Free Service in Care of Tornado Patients.—At a meeting in Clarksburg on July 7 the Harrison County Medical Society unanimously agreed that no charge is to be made for services rendered by members in connection with the tornado which swept through the Shinnston area on June 23, leaving a death total of 70 from that community alone and sending many injured persons to the hospitals. Members of the medical society waived not only fees for services at the time of the disaster but also fees for medical and surgical care that may be necessary until the injured have recovered. The society is composed of 85 physicians, 20 of whom are serving in the armed forces.

GENERAL

Basil O'Connor Head of Red Cross.—On July 13 President Roosevelt appointed Mr. Basil O'Connor, president of the National Foundation for Infantile Paralysis, New York, as chairman of the American Red Cross. George L. Harrison, LL.D., New York, had been serving as temporary chairman.

Outbreak of Infantile Paralysis.—On July 12 Kentucky reported 129 cases of poliomyelitis with 4 deaths, and medical authorities were said to be tightening regulations to keep the outbreak to a minimum. An Associated Press report stated that the count in other states was Mississippi 23, Georgia 9, Virginia 26, South Carolina 16, Louisiana 68, Alabama 9 and Florida 13.

Pediatric Examinations.—The American Board of Pediatrics announces that a written examination for all applicants expecting to take the spring oral examinations will be held March 2, 1945. Oral examinations will be held in New York on April 14 or 15, 1945, applications to be in by Dec. 15, 1944, and Chicago, May 19 or 20, 1945, applications to be in by Jan. 19, 1945. Dr. C. Anderson Aldrich, 115½ First Avenue S.W., Rochester, Minn., is the secretary of the American Board of Pediatrics.

Fourth of July Accidents.—Deaths occurring during the recent Fourth of July week end totaled 447, according to the Associated Press. It was stated that although the death list totaled less than half of that expected by the National Safety Council the fatalities recorded were nearly 150 more than last

year, when 298 were reported for the three day week end. Traffic mortalities led the list, with 177 counted in thirty-eight states and the District of Columbia. Thirty-seven accidental deaths occurred in California, with 22 traffic fatalities. Drownings accounted for 142 lives. No deaths were reported caused by fireworks.

Commonwealth Fund Merges Health Studies and Public Health.—The Commonwealth Fund, New York, has merged its division of health studies with the division of public health. Miss C. R. Randolph in the division of health studies has been named director of studies. Dr. Clarence L. Scanlman is director of the division of public health and Dr. Harry E. Handley assistant director. Dr. Fred L. Moore recently resigned as director of the division of health studies of the Commonwealth Fund to assume a newly created position of professor of social and environmental medicine in the department of preventive medicine and community health at Long Island College of Medicine, Brooklyn (this issue, p. 859).

Smoke Association Creates Section on Health Aspects of Smoke.—The Smoke Prevention Association of America at a meeting on June 6 in Detroit passed a resolution calling for the creation of a section on the health aspects of the smoke nuisances to collect data and study the subject with a view to recommending necessary measures for the abatement of the smoke evil in the interest of the health of the people. The resolution was introduced by Dr. Emil Amberg, Detroit, chairman of the smoke abatement committee of the Wayne County Medical Society. Mr. Frank A. Chamber, 139 North Clark Street, Chicago, is the secretary-treasurer of the Smoke Prevention Association of America.

LATIN AMERICA

Health Activities in Latin America.—*New Institute of Hygiene.*—On May 15 the Institute of Hygiene, Havana, Cuba, was formally opened in new headquarters. The buildings were recently occupied by the headquarters of the police but have been renovated to accommodate the institute. There is a division concerned with clinical diagnostic procedures, including parasitology, hematology, serology and bacteriology; a division concerned with sanitary, chemical and physical examinations of water, sewage, swimming pools, food and drugs, and a division for the manufacture of vaccines, plasma, serums and the like to supply the public hospitals and dispensaries of Cuba. A close relationship will be developed with the Hospital for Infectious Diseases. The institute will have a staff of about 150 persons, including 10 physicians and 1 sanitary engineer. Dr. Moises Chediak is director of the institute, which will be under the direction of a board of seven trustees appointed by the president. Until two years ago the institute was a part of the Carlos Finlay Institute, which will continue the functions of teaching and research. A feature of the dedication was the presentation of decorations by the Cuban government to the Rockefeller Foundation and the American Public Health Association and the posthumous award to the American Yellow Fever Commission in honor of great services rendered to yellow fever control.

Distribution of Doctors.—The committee on education of the Puerto Rico Medical Association has completed a survey which shows that there are not enough physicians available for the needs of the people. While the proportion of doctors revealed in the survey is the most favorable yet registered, it is believed that services are inadequate for rural sections. The report recommends that an effort be made to reorganize the staffs of the health units in order to distribute these physicians better. The report adds that the establishment of a medical school, the provision of scholarships for Puerto Rican students in other universities and the reorganization of municipal health and welfare boards would better stabilize the proportion of physicians to the civilian population.

Activities of Chest Physicians.—The American College of Chest Physicians announces that an Argentine chapter has been organized with Dr. Gumersindo Sayago, Cordoba, as president, Dr. Raúl F. Vaccarezza, Buenos Aires, vice president and Juan Carlos Rey, Buenos Aires, secretary-treasurer. Plans are under way to organize a chapter in Peru.

Tuberculosis Award Goes to René Mendoza.—Dr. René García Mendoza Rabell, Havana, was recently presented with the Joaquín Martos Award for the best work presented on a tuberculosis subject. The prize was instituted by the National Council of Tuberculosis of Cuba in memory of the late Dr. Joaquín Martos.

Control Boards for Penicillin.—The various Latin American governments are cooperating in the distribution of penicillin by setting up control boards similar to those in the United States.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 17, 1944.

Plans for the Control of Narcotic Drugs in Liberated Europe

The Permanent Central Opium Board has issued a report stating that it has reason to believe that the military and civil authorities concerned are giving attention to the urgent question of restoring complete control over narcotic drugs in enemy occupied countries as soon as these are liberated. It will be for the military authorities, acting no doubt in arrangement with experienced civil drug control officials, to carry recommendations into effect. Unless control can be effected, the board considers that there will be grave danger of a recrudescence of illicit traffic similar to that which occurred after the last war, with consequent addiction among the suffering people. They think that in some cases there will be three stages for which provision may be necessary: (1) during the period of military control, (2) the period of reestablishment of national administration, with allied occupation and supervision, and (3) the initial period of full national control. During the first stage all drugs in civilian hands should be reported and placed under control of the designated authority. No imports should be allowed for civilian use, by relief organizations or otherwise, except under a license. Civilian supplies should be allowed solely on medical prescriptions, and periodic returns should be made by relief organizations and firms. Any factory manufacturing drugs should be placed under control, and no new one should be allowed to start production except under license. No imports of raw materials—opium, poppy straw, crude morphine, coca leaves, crude cocaine or Indian hemp—should be allowed except under license.

Control in the second and third stages should develop out of the measures taken during military occupation and lead to the full system of national and international control established under the conventions of 1925 and 1931. There are already indications that the illicit trafficker is very much alive. Sufferers from the war will in many cases succumb if the temptation is presented to them.

Shortage of Bodies for Dissection

There is at present a shortage here of human bodies for dissection. In a lecture delivered at the Royal College of Surgeons Dr. Neville Goodman, government inspector of anatomy, reviewed the situation since 1832, when the anatomy act was passed. This put an end to body snatching by empowering persons having lawful custody of a body to allow it to be dissected. But this power is overridden if the deceased expressed in writing or in the presence of two persons his wish not to be dissected, or if his relatives object. The greater part of the supplies for dissection are the unclaimed bodies of persons who have died in institutions. In 1941 and 1942 these were 97 per cent of all bodies available for dissection; the remaining 3 per cent were bequests by the deceased. The increased prosperity of the masses has led to a decline in the number of unclaimed bodies. The maximum number of students was formerly sixteen per body; two for each limb, four for the head and neck and four for the thorax and abdomen. The shortage of bodies has caused the number of students per body to be increased to twenty today.

As a remedy for the shortage, Dr. Goodman suggests that the number of bequests of bodies should be increased. He is convinced that if more was known by the medical profession and by the public of the need for bodies, and the conditions of disposal were explained, the proportion of bequests would rise

rapidly. The professor of anatomy who receives a body is responsible for its preservation until it is ready for burial, which is conducted by clergyman of the faith which the deceased professed. Government forms for persons intending to bequeath their bodies are supplied.

The Reform of Medical Education

As stated in a previous letter to THE JOURNAL, the reform of medical education is being widely discussed. In his opening address to the General Medical Council Sir Herbert Eason, the president, stated that in all the evidence they had submitted to the Departmental Committee on Curriculum and Examinations the council called attention to the poor standard of English attained by many students when they began their medical studies. The chief reason for this defect, he said, was premature specialization. As long ago as 1934 the Council reached the conclusion that the standard of general education for prospective medical students should at least be equal to that of entry into other learned professions and not below that of the matriculation examination of universities. In 1942 the council added that this education should be broad and not regarded as complete unless it included the general principles of physical and biologic science. Courses leading to the first M. B. examination should be taken at a medical school, the council held; this considered view was based on the fact that laboratory facilities at schools vary widely, few approaching university standard. Moreover, it was felt that teaching these subjects at other schools encouraged the student to enter on the medical curriculum at too early an age and to start specializing too soon.

In most communities, Sir Herbert stated, the physician has always been looked on as an educated man of the world whose opinions on problems other than medical carry weight. To maintain this position it is essential that the medical student shall have a high standard of general education and an outlook beyond the confines of an examination syllabus. For complete and adequate medical education, he said, it is essential that teachers of preclinical subjects work in close collaboration with the teachers of clinical subjects, so that not only will the former be able to impress on students the bearing of preclinical subjects on their clinical studies, but also clinical teachers shall have associated with them the teachers of purely scientific subjects in any investigations.

As regards the curriculum generally, the Council must always bear in mind that it was primarily for the general practitioner and that higher medical education is a matter for postgraduate instruction, the president said. But the study and teaching of social and preventive medicine deserve further encouragement, he added, so that students and physicians may be better acquainted with the influence of social, occupational, genetic and domestic factors on the incidence of disease and so that measures other than those usually employed in remedial medicine should be promoted for the protection of the individual and the community against such forces as interfere with the full development and maintenance of man's mental and physical capacity. It would be an advantage both to the community and to the practitioner, he felt, if the medical student who had passed his final examination was to spend some time in practice under supervision before embarking on his own account.

Industrial Medicine

The increased attention now being given to what is called here social medicine, of which industrial medicine may be regarded as a branch, is shown by the invitation of the Social and Preventive Committee of the Royal College of Physicians to representatives of the General Council of the Trades Union Congress to attend one of the committee meetings and state their views on the training for and practice of industrial medicine. In general, the Trades Union Council desires

the medical profession to recognize more fully the importance of provision for the study of industrial disease. It has suggested a specialized course of training to qualify young practitioners for industrial appointments. At the same time the Council sees a need for a more general diffusion of knowledge of industrial medicine, because the doctor in the factory may not be the worker's medical adviser, and a full time factory doctor certainly will not be. In the opinion of the Trades Council the treatment of occupational diseases is a distinct branch of medicine to which special attention should be given in medical practice as well as in the factory health code. With regard to the status of industrial medical practice, the Council would like to see established a public service that would make the factory doctor independent of the employer. The meeting and the discussion were informal and take their place in a comprehensive inquiry which the Royal College of Physicians is making.

BRAZIL

(From Our Regular Correspondent)

June 3, 1944.

Brazilian War Bread

Dr. Josue de Castro, director of the Division of Food of the Brazilian Office of the Coordinator of Economic Mobilization, has just published a technical paper explaining the scientific foundations of the so-called war bread in Brazil. He stresses the importance of bread as a fundamental food, and considering that wheat, the basic raw material for its production, is largely an imported product in Brazil, he points out that this problem has always occupied the attention of the authorities. The "War Bread Committee" in charge of the task of seeking a rational solution for the problem was set up in due course by the coordinator of economic mobilization. As a first step in this direction the average consumption of bread in Brazil had to be ascertained, and it was found to be very low in contrast to other large bread consuming countries, this being explained by Brazilian food habits and by economic difficulties in obtaining this commodity. Although bread is not a protective food, as are meat, milk, vegetables and fruits, the possibility of improving the Brazilian diet by wider and more rational use of bread was judged worth examining in order to justify the measures to encourage a higher consumption of such a food among the people. The next step was to study the nutritive value of the type of bread consumed in Brazil during the recent difficult years, which is composed of a mixture of 85 per cent wheat flour and 15 per cent manihot flour, the nutritive properties of which are inferior to those of pure wheat flour. Studies were then made of the measures adopted by the American, British and Canadian governments in the present emergency. The so-called enriched bread in use in the United States is inaccessible in practice to poorer nations. A solution for the problem was then sought through an increase of the extraction rate of wheat, in use in Great Britain and in Canada, to obtain the maximum nutritive value from whole wheat. Research in this direction, in both Brazil and Argentina, was aimed at (1) a comparative study of the nutritive value of flour of different extractions, (2) the digestibility of the various types of bread prepared with these flours and (3) the perishability of the several types of flour. These investigations revealed that flour at 85 per cent extraction had the highest amount of nutritive elements, though it was inferior as to perishability. Nevertheless, these results decided the committee to recommend the use in Brazil of baking flour of 85 per cent extraction. This measure enables production to be increased by about 10 per cent for the same amount of wheat imported, at the same time producing a type of bread with much higher nutritive value than that heretofore in use.

The Death of Dr. Moncorvo Filho

Dr. Arthur Moncorvo Filho, one of the pioneers of pediatrics and infant hygiene in Brazil, died a few days ago at the age of 73. Dr. Carlos Moncorvo, his father, graduated in medicine in 1874 and was a pioneer in pediatrics in Brazil. He was a leading member of the National Academy of Medicine of Rio de Janeiro and a leading pediatrician of the city, in which he practiced until his death in 1899. Moncorvo Filho, who was an active collaborator with his father in establishing pediatrics as an independent branch of medicine in Brazil, in 1901 founded the Instituto de Proteção à Infancia (a child welfare institute), with a large infant clinic, and created a national foundation, with branches in several states of Brazil, to give specialized medical care to infants and to promote the health of the child, thus anticipating by many years the efforts of the public administration in behalf of child welfare. As a pediatrician he succeeded in having a large practice in Rio de Janeiro, but he has been particularly noted as the benefactor of many thousands of poor children cared for and assisted freely at his well known infant clinic. For some time the Instituto Moncorvo, as the institution was known, acted as an important educational center for many young physicians who intended to specialize in pediatrics. In 1941 the city administration bought the Instituto Moncorvo from its founder, in recognition of the good work done by him in the field of child welfare. Since then the building has been enlarged and refitted as a hospital and is now known as the Moncorvo Filho Hospital. During his life Dr. Moncorvo Filho published several books and many papers dealing with pediatrics and child welfare.

Brief Items

Dr. J. P. Fontenelle, professor of public health administration in the course of public health of the Oswaldo Cruz Institute, has been appointed director of the division of health information in the Rio de Janeiro city department of health.

Two new divisions have been created in the biologic laboratory of the medical department of the Brazilian army, one to produce therapeutic serums and the other to operate a blood bank. The building to accommodate these new divisions has recently been opened. It bears the name of the late Dr. Ismael da Rocha, who was a leading army physician and one of the most efficient among the past heads of the army medical department. The division of therapeutic serums and the blood bank will be directed by two army physicians, Major José F. Rodrigues and Capt. Flavio P. Mesquita.

Dr. Raul David de Sanson, a noted specialist practicing in this city, has been appointed professor of otorhinolaryngology at the Medical School of the University of Rio de Janeiro.

Marriages

JOHN J. MARLOWE, East Chicago, Ind., to Dr. ROMONA A. MENZIE of Chicago, Aug. 22, 1943.

THOMAS LYNCH MURPHY to Miss Virginia B. McKenzie, both of Salisbury, N. C., June 10.

GEORGE K. STRODE, New York, to Mrs. Josephine Clark Dillard of Perry, Mo., June 29.

JOHN R. HOWARD, Vultee Field, Calif., to Miss Lucile V. Jarvis at La Salle, Ill., April 6.

WILLIAM HOLMAN DAUBS, Foreman, Ark., to Mrs. D. E. Nichols of Texarkana, May 9.

HAROLD KATZMAN, Utica, N. Y., to Miss Frances Sonneborn of Miami Beach, Fla., June 4.

SAMUEL C. DE LAURA, Norfolk, Va., to Miss Margaret Kapp of Durham, N. C., June 1.

RICHARD H. BERG to Miss Edith Teak, both of Oxford, Mich., June 10.

GEORGE F. REED, Cohoes, N. Y., to Miss Marion Lee of Troy recently.

Deaths

Samuel Iglauer * Cincinnati, Medical College of Ohio, Cincinnati, 1898, professor of otolaryngology at the University of Cincinnati College of Medicine, specialist certified by the American Board of Otolaryngology and the American Board of Plastic Surgery, secretary, Section on Laryngology, Otolaryngology and Rhinology from 1922 to 1925 and chairman, 1925-1926, American Medical Association, member of the American Academy of Ophthalmology and Otolaryngology and second vice president in 1935, member of the American Laryngological, Rhinological and Otolaryngological Society and formerly a member of the council, member and in 1923 president of the American Broncho-Esophagological Association, in 1933 president of the Cincinnati Academy of Medicine, member of the American Laryngological Association, Cincinnati Otolaryngologic Society and the American Association for the Advancement of Science, member of the board of directors since 1925 of the Cincinnati Anti-Tuberculosis League, fellow of the American College of Surgeons, in 1913 member of the city charter commission, member of the medical advisory board number 1, Selective Service, a captain in the medical corps of the U S Army, 1918-1919, director, otolaryngology, Children's Hospital, Cincinnati General Hospital and the Jewish Hospital, where he died suddenly June 23, aged 72, of cerebral hemorrhage.

William Andrew Krieger * Poughkeepsie, N Y, Albany Medical College, 1906, specialist certified by the American Board of Otolaryngology, member of the House of Delegates of the American Medical Association in 1942, member of the American Academy of Ophthalmology and Otolaryngology and formerly vice president, member of the Association for Research in Ophthalmology, Inc, fellow of the American College of Surgeons and the New York Academy of Medicine, past president of the Dutchess-Putnam Counties Medical Society, in 1942 vice president of the Medical Society of the State of New York, served during World War I, consulting ophthalmologist and otolaryngologist, Vassar Brothers, Hudson River State and Bowne Memorial hospitals in Poughkeepsie, Harlem Valley State Hospital, Wingdale, Matteawan State Hospital, Beacon, Butterworth Memorial Hospital, Cold Spring, Sharon Hospital, Sharon, Conn, and the Wassaucott State School, Wassaucott, director and president of the Merchants' National Bank and Trust Company, died May 19, aged 61, of arteriosclerotic heart disease.

Edward Huntington Williams * Santa Monica, Calif, State University of Iowa College of Medicine, Iowa City, 1892, formerly demonstrator of histology at his alma mater, at one time assistant physician at the Matteawan State Hospital, Beacon, N Y, and the Manhattan State Hospital, New York, served on the staffs of the Los Angeles General Hospital and five sanatoriums, associate editor of the tenth edition of the Encyclopedia Britannica, published in England, and the United Editors' Encyclopedia, joint author, with Dr Henry Smith Williams, of a five volume history of science, an eleven volume series called "Every Day Science" and "The Wonders of Science in Modern Life," in ten volumes, author of "The Walled City," "The Question of Alcohol," "Opiate Addiction—Its Handling and Treatment," "Our Fear Complexes," "The Doctor in Court," "Insanity Plea," "Animal Autobiographies" and others, died June 24, aged 75, of heart disease.

Leonard Wheeler Ely, Palo Alto, Calif, College of Physicians and Surgeons, New York, 1895, at one time practiced in New York and Denver, member of the California Medical Association, chairman of the Section on Orthopedic Surgery, American Medical Association, 1913-1914, from 1913 to 1924 associate professor of surgery (orthopedics) at the Stanford University School of Medicine, where he had been professor of surgery (orthopedics) from 1924 to 1934 when he became professor of surgery (orthopedics) emeritus, captain, medical corps, U S Army, during World War I, formerly associated with the U S Public Health Service, served on the staffs of the Orthopedic and Presbyterian hospitals in New York, on the staff of the Stanford Hospital, San Francisco, author of "Joint Tuberculosis," "Bone and Joint Diseases" and "Inflammation in Bones and Joints", died June 17, aged 75, of coronary thrombosis.

Frank Patrick McNamara * Dubuque, Iowa, Harvard Medical School, Boston, 1918, specialist certified by the American Board of Pathology, Inc, past president of the Iowa State Medical Society and the Dubuque County Medical Society, member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists, fellow of the American College of Physicians, at

one time instructor in pathology at the Yale University School of Medicine, New Haven, Conn, served on the staff of the Decorah Hospital, Decorah, on the staffs of St Joseph Mercy and Finley hospitals; in 1933 he received the silver medal from the Scientific Exhibit of the American Medical Association for an exhibit illustrating the activities of the pathologic laboratory in a hundred bed hospital, died July 2, aged 59.

Elmer Isadore Huppert * New York, University and Bellevue Hospital Medical College, New York, 1903, assistant clinical professor of surgery at his alma mater, now known as the New York University College of Medicine, member of the American Proctologic Society, fellow of the American College of Surgeons, assistant attending surgeon third division, Bellevue Hospital, consulting proctologist, Long Beach Hospital, Long Beach, N Y, St John's Long Island City Hospital, Long Island City, Lutheran and Wickersham hospitals, died in the Doctors Hospital June 30, aged 64.

Ruby Lacey Cunningham * Berkeley, Calif, University of California Medical School, San Francisco, 1914, formerly instructor in medicine at her alma mater and assistant professor of hygiene and assistant physician to women in the students' health service, senior physician in the dispensary of the Ernest V Cowell Memorial Hospital, past president of the Pacific Coast Section and a member and formerly vice president of the American Student Health Association, served as president of the Berkeley Health Center, died June 2, aged 64, of cerebral hemorrhage.

George Winston Acker, Port Gibson, Miss, Medical College of Alabama, Mobile, 1889, secretary of the Clariborne County Medical Society, of which he had been past president, served as county health officer and county registrar, veteran of the Spanish-American War, died in a sanatorium at Vicksburg May 13, aged 77, of carcinoma of the rectum.

Walter Gladwin Allison, Hope, Ark, Louisville and Hospital Medical College, Louisville, 1908, member of the Arkansas Medical Society, shot and killed May 24, aged 74.

Ernest Houston Baird * Dyersburg, Tenn, Homeopathic Medical College of Missouri, St Louis, 1903, past president and secretary of the Dyer-Lake-Crockett Counties Medical Society, past president of the West Tennessee Medical Society, councilor of the Ninth District of the Tennessee State Medical Association, on the staff of the Baird Brewer General Hospital; died May 14, aged 64, of coronary occlusion.

Charles G. Blackwelder, New Springfield, Ohio, University of Maryland School of Medicine, Baltimore, 1895, for many years township physician, served on the staffs of hospitals in Youngstown, died in Cuyahoga Falls May 18, aged 75, of cerebral sclerosis.

Felix Anthony Blanchard * Bishopville, S C, Tulane University of Louisiana School of Medicine, New Orleans, 1921, died May 3, aged 46, of heart disease.

Bruce Tucker Bowers, Springfield, Mass, Tufts College Medical School, Boston, 1898, died March 13, aged 75.

John N. Bradley, Schenectady, N Y, Albany (N Y) Medical College, 1875, died April 30, aged 91, of senility.

Julian Holt Buff, Orlando, Fla, Emory University School of Medicine, Atlanta, 1916, member of the Florida Medical Association, on the staff of the Orange General Hospital, formerly on the staff of the Grady Hospital Atlanta, died May 10, aged 52, of heart disease.

John Blair Cross, Harriman, Tenn, Southern Medical College, Atlanta, 1896, for two terms a representative from Roane County in the state legislature, formerly city health officer, served during World War I, died April 15, aged 75.

Peter James Fagan, New York, Albany (N Y) Medical College, 1892, died April 1, aged 73.

Robert Furman, New York, Albany (N Y) Medical College, 1889, served on the staffs of Broome Street Dispensary, New York Polyclinic and Roosevelt hospitals, surgeon for the Illinois Central Railroad, died March 13, aged 81.

William H. Furman, Henderson, N C, Jefferson Medical College of Philadelphia, 1910, member of the Medical Society of the State of North Carolina, died April 3, aged 59.

Prince S. Gathings, Lawton, Okla, Meharry Medical College, Nashville, Tenn, 1905, died March 11, aged 64, of heart disease.

Charles Sebert Hale, Cisco, Texas, Vanderbilt University School of Medicine, Nashville, Tenn, 1890, member of the State Medical Association of Texas; president of the chamber of commerce and the Lions Club, died March 22, aged 74, of pneumonia.

Harmon Lamontte Stanton @ Evansville, Ind.; State University of Iowa College of Medicine, Iowa City, 1920; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; past president of the Vanderburgh County Medical Society; president of the board of health; on the staffs of the Deaconess and St. Mary's hospitals; died April 23, aged 50, of cerebral hemorrhage.

Frank Stradling @ Earlville, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1900; died suddenly in Hamilton May 1, aged 69, of heart disease.

James Page Strong, Kennedyville, Md.; Maryland Medical College, Baltimore, 1907; formerly associate professor of gynecology at his alma mater; at one time on the staff of the Maryland General Hospital, Baltimore; died April 20, aged 73, of heart disease.

Marshall S. Surensen, Viroqua, Wis.; Rush Medical College, Chicago, 1894; died in the Lutheran Hospital, La Crosse, March 27, aged 72, of strangulated hernia, peritonitis and myocardial failure.

John Lincoln Taylor @ Libertyville, Ill.; Rush Medical College, Chicago, 1894; since 1900 coroner of Lake County; past president of the Lake County Medical Society; served on the district appeal board during World War I; on the staff of the Victory Memorial Hospital, Waukegan; one of the founders and on the staff of the Condell Memorial Hospital; died May 5, aged 78, of coronary occlusion.

William Lawrence Taylor, Holdenville, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1910; member of the Oklahoma State Medical Association; for many years president of the Hughes County Medical Society; at one time official state physician at every execution at the state penitentiary in McAlester; died in the Wesley Hospital, Oklahoma City, April 16, aged 65, of uremia.

Frank Scott Tut-hill, Concord, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1891; member of the Michigan State Medical Society; president of the Farmers State Bank; died April 18, aged 77, of heart disease.

Thomas Poage Hunt Twaddell, Wynnewood, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; member of the board of health; served on the staffs of the Children's Hospital and Hospital of the University of Pennsylvania, Philadelphia, where he died April 12, aged 72, of pneumonia.

Lisby Lucius Wade @ Ryan, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1917; secretary of the Jefferson County Medical Society; at one time a school teacher; first county superintendent of schools; died in Waurika April 1, aged 62, of myocarditis.

Edgar S. Walford, Detroit; College of Physicians and Surgeons of Chicago, 1889; died May 6, aged 79, of bronchopneumonia.

James Ellsworth Webb, Mount Angel, Ore.; Willamette University Medical Department, Salem, 1898; served as mayor for many years; died April 23, aged 71, of carcinoma of the prostate with metastases.

Horace G. Welsh, Hutchinson, Kan.; Jefferson Medical College of Philadelphia, 1880; honorary member of the Kansas Medical Society; died March 9, aged 88, of carcinoma of the stomach.



LT. (JG) TIFFANY V. MANNING
(MC), U.S.N.R., 1913-1944

Mark Hunking Wentworth, Concord, Mass.; Harvard Medical School, Boston, 1905; member of the Massachusetts Medical Society, American Psychiatric Association, New England Society of Psychiatry and the American Psychopathological Association; member of the staff of the Boston City Hospital; died May 15, aged 65, of pulmonary tuberculosis.

Elmer George Wherry, Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1896; member of the Medical Society of New Jersey; medical director of the Babies' Hospital-Coit Memorial; served on the staffs of the Newark Memorial Hospital, Hospital of St. Barnabas and for Women and Children and the Newark Eye and Ear Infirmary; died in the Presbyterian Hospital June 24, aged 74.

John Calhoun White @ Hazlehurst, Miss.; Chicago College of Medicine and Surgery, 1912; also a pharmacist; died May 22, aged 58, of heart disease.

Willard Francis Whitmarsh, Bridgewater, Mass.; Harvard Medical School, Boston, 1891; member of the Massachusetts Medical Society; died May 15, aged 79, of injuries received from a fall.

Charles A. Wiest, Stover, Mo.; University of Maryland School of Medicine, Baltimore, 1897; member of the Selective Service System; for many years county physician; died April 20, aged 70, of heart disease.



MAJOR WILLIAM REEMTSMA, U. S. A.
(NATIONAL GUARD), 1901-1943

Charles Frederick Wilson, St. Louis; St. Louis College of Physicians and Surgeons, 1893; Harvard Medical School, Boston, 1898; died April 9, aged 76, of lobar pneumonia.

George Edgar Winslow @ Boston; Harvard Medical School, Boston, 1901; chairman of the local draft board number 34; examining physician for the Boston City schools and for industrial plants in Hyde Park; for many years associate member of the staff, Norwood Hospital, Norwood, Mass.; died April 17, aged 67, of carcinoma.

Earle Cerenius Winsor, Schenectady, N. Y.; Syracuse University College of Medicine, 1917; member of the Medical Society of the State of New York; served during World War I; a charter member of the Schenectady Rotary Club; on the staff of the Aurelia Osborn Fox Memorial Hospital, Oneonta, where he died April 4, aged 53, of leukemia.

Franklin Crane Woodruff, Atlantic Highlands, N. J.; New York Homeopathic Medical College and Hospital, New York, 1887; died May 4, aged 78, of arteriosclerosis.

Ezekiel R. Young, Charco, Texas (licensed by years of practice); president of the school board; died April 21, aged 81, of angina pectoris.

KILLED IN ACTION

Tiffany Vincent Manning, Glen Cove, N. Y.; Long Island College of Medicine, Brooklyn, 1943; served an internship at the Meadowbrook Hospital, Hempstead; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on Oct. 12, 1943; killed in action in the North Atlantic area April 28, aged 30.

William Reemtsma, New Braunfels, Texas; Baylor University College of Medicine, Dallas, 1933; formerly secretary of the Comal County Medical Society; served as health officer of Comal County; commissioned a captain in the U. S. Army (National Guard) on Nov. 25, 1940; later promoted to major; killed in action in North African area Nov. 29, 1943, aged 42.

Bureau of Investigation

Correspondence

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

Following are abstracts of stipulations in which promoters of "patent medicines," medical devices and cosmetics have agreed, following action by the Federal Trade Commission, to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products.

Dr. Caldwell's Laxative Senna Combined with Syrup Pepsin.—In April 1943 Dr. W. B. Caldwell, Inc., Monticello, Ill., and Sherman & Marquette, Inc., Chicago, which handles its advertising, stipulated with the Federal Trade Commission that they would cease representing that any therapeutic properties that the product may possess are enhanced by its pepsin content. They further agreed to discontinue any advertising which failed to reveal that the preparation should not be used when abdominal pain, nausea or other symptoms of appendicitis are present, provided, however, that such advertising need only contain the statement, "Caution: Use only as directed" when the labeling directions include a warning to the same effect. In this connection it is interesting to note that in 1939 the Commission had ordered the Caldwell concern to cease certain misrepresentations as to the efficacy of its product, then known under the various names "Syrup Pepsin," "Syrup of Pepsin" and "Dr. Caldwell's Syrup Pepsin." The order prohibited use of the word "pepsin," alone or in association with other words, to describe a preparation not containing sufficient pepsin as an active ingredient to possess substantial therapeutic value because of the pepsin content. The order intimated that the action of the Caldwell preparation depended chiefly on the presence of senna and cascara sagrada.

FaSet—This device is put out by L. G. Carter and R. B. Kalbach, trading as FaSet Company, Rockville Centre, Long Island, N. Y. In June 1943 these persons and Henry Haas and Adrian Bauer, trading as Adrian Bauer Advertising Agency, Philadelphia, stipulated with the Federal Trade Commission to discontinue the following advertising misrepresentations: That the device is a "face lift" or a "new tissue form" or that its use imparts firmness or beauty to the face or neck, lifts, rebuilds or strengthens the muscle tissues, or removes double chin or face lines.

Formula 301 and Formula 301A.—These are put out by the Kay Preparations Company, Inc., of New York, which stipulated with the Federal Trade Commission in May 1943 to discontinue the following advertising misrepresentations: That Formula 301 is not a cosmetic, but a scientific discovery for the correction of beauty imperfections such as acne, pimples, enlarged pores, oiliness or skin eruptions, whether due to surface skin disorders or systemic causes, that it acts "fast" or, in fact, is at all effective under the make up to clear the skin of imperfections, that "no matter how bad your face may look now," amazing results will follow within two weeks by using the preparation, and that in 1 to 5 days, or within any specified time, it banishes skin imperfections. With regard to Formula 301A, the concern stipulated that it would cease representing that this is a "Pure Sulphur" soap, or more effective than any other standard facial soap in preventing rancidity of oil or eruption in the skin. Further, the concern stipulated that it would discontinue use of the term "dermatician" as applied to a cosmetician who is not a dermatologist, and the words "Special Sulphur" as part of the trade designation of Formula 301A.

Kovac, Chikovac, Papaya Dylestin and Kovac Type Acidophilus Culture.—In May 1943 the Kovac Laboratories, Inc., Los Angeles, entered into a stipulation with the Federal Trade Commission to discontinue the following advertising misrepresentations, among others, concerning these products: That any of them is capable of bringing about good appetite, good digestion, vitality, strong fighting blood, sound nerves, refreshing sleep or efficient body resistance against disease; that by their use old age or body deterioration can be deferred or corrected, or that because of their acidophilus content, or otherwise, the Kovac preparations constitute effective treatments for neuralgia, asthma, bronchitis, high blood pressure and some other disorders. The concern further agreed to cease naming mineral salts or other chemical elements as ingredients of its products, which references might suggest that such content has any potency or significance in producing and sustaining healthy blood, glands, nerves or other fluids, plasma or tissues of the body, when, in fact, such ingredients are not present in amounts sufficient to have any appreciable effect for the purposes designated.

Seal-Cote.—That this lacquer will cause nails to grow longer, will aid their natural growth, or correct or prevent their splitting or breaking, were advertising misrepresentations which the Flamingo Sales Company of Hollywood, Calif., agreed to discontinue, in a stipulation that it entered into with the Federal Trade Commission in June 1943. The stipulation also was signed by Bernard Weinberg, trading as Milton Weinberg Advertising Company, Los Angeles, who prepared the advertising copy.

PENTOTHAL SODIUM SLOUGH

To the Editor:—In discussing the results of their experiments on the prevention of pentothal sodium slough by procaine hydrochloride, Elder and Harrison (*THE JOURNAL*, May 13, p. 116) suggest that the beneficial action of the procaine may be due to its prevention of local vasospasm.

I should like to call attention to some related observations reported by A. D. Speransky, director of the Department of Pathophysiology of the All-Union Institute of Experimental Medicine and published in English translation in 1935 (*A Basis for the Theory of Medicine*, Moscow, Inra Cooperative Publishing Society, 1935, p. 163). In a large number of experiments in dogs he was able to demonstrate the production of ulcers of the extremities after the application of irritating substances to the central end of the severed sciatic nerve. He also reported some successful attempts at the treatment of trophic ulcers in human beings by procaine block. These experiments were part of a much larger project in which the role of the central nervous system in the pathogenesis of organic disease was investigated in detail and many rather surprising experimental results were obtained.

I hope that this communication may stimulate further interest in repeating and either confirming or disproving the results of the Russian author. They are certainly too important to be neglected.

ARTHUR SHAPIRO, M.D., Brooklyn

To the Editor:—In the May 13 issue of *THE JOURNAL* is an article by Elder and Harrison on the prevention of pentothal sodium slough with procaine hydrochloride. They stated that there had been no opportunity to test the method in man, and the suggestion is made that the method might be useful in preventing slough caused by the extravascular injection of other irritants.

In 1931 I was privileged to spend several weeks with the late Dr. Soma Weiss, who at that time was at the Thorndike Memorial of the Boston City Hospital. He was working with Dr. George Robb and Dr. Lawrence Ellis on the sodium cyanide circulation time. As an experimental subject I was given an injection of sodium cyanide solution, which through accident was deposited outside the vein. Dr. Weiss immediately injected 1 per cent procaine hydrochloride solution, which gave prompt relief from the intense pain. No slough appeared, although sodium cyanide solution is decidedly alkaline.

Since that time I have had the occasion to use and to show other physicians Dr. Weiss's effective method in both controlling pain and preventing slough following the accidental extravascular injections of irritating agents, in particular the arsenicals and mercurial diuretics.

MILTON KISSIN, Major, M. C., A. U. S.

To the Editor:—In *THE JOURNAL*, May 13, page 117, Elder and Harrison suggest the "possibility . . . of procaine in preventing tissue necrosis . . . in other solutions that are accidentally extravasated during intravenous medications, e. g., arsenical compounds. . . ." In *Queries and Minor Notes* in *THE JOURNAL*, Jan. 28, 1939, "M.D., Connecticut" asked how to relieve the patient who suffered from neosarsphenamine leaking into the tissues during an intravenous injection. I began using concentrated solutions of neosarsphenamine over twenty-five years ago and called attention to their use in the December 1913 issue of the *California State Journal of Medicine*. On more than one occasion I too, "owing to the patient's restlessness" or to mine (!) or to movements associated with release of tourniquets and the like have noted leaks into the tissues. Occasionally the patient remains silent. As a rule

patients at once complain of pain. With the slightest leak, even if the patient has not noticed it, it has been my custom immediately to inject 1 per cent solution of procaine hydrochloride into the tissues to dilute the neosarsphenamine solution but also because I have found that the procaine not only relieves immediately but because the resulting tissue reaction is much less than with the use of all other solutions that have been recommended. I have thus used procaine hydrochloride for more than twenty-five years, and, though during my years of teaching I always told my classes about it, it may be that giving this information wider publicity may save other physicians and patients considerable annoyance. I am making no claim to priority. Others before me may have used this method or may even have published a description of it.

RÉNÉ BINE, M.D., San Francisco.

PERNICIOUS VOMITING OF PREGNANCY

To the Editor:—On page 223 of THE JOURNAL, May 20, in a communication from a London correspondent, there is a discussion on the subject of hyperemesis gravidarum, pointing out two causative factors, hepatic necrosis versus hysteria.

In a small series each patient was given 100 mg. of thiamine hydrochloride intramuscularly every other day, with dramatic and startling results. The pernicious vomiting in all instances cleared after the fourth or fifth injection. Fifty per cent improvement had been noticed after the first injection. Every patient made a remarkable gain in weight within a week's time and went on a general diet without recurrence at any time during the current pregnancy. One patient's remark was interesting and characteristic: "I have been vomiting during my three pregnancies, even several days after I have been delivered. Every child was delivered in a different city by a different doctor, since we belong to the theatrical profession. This fourth pregnancy was the worse, but the 'shots stopped it.' I wish the other doctors would have done the same thing."

The theory of Sir Arthur Hurst of hepatic necrosis is substantiated by the facts that prior to the advent of thiamine a similar series of patients had been treated with glycogen enemas and later with a carbohydrate diet, with satisfactory results in the majority of cases but rather slowly, one to two months elapsing before improvement was noticed. With the thiamine therapy the results are accomplished in three to five days in the most pernicious cases of hyperemesis gravidarum.

Sir Arthur Hurst's theory with reference to hepatic necrosis is substantiated by the observation that an increase of glycogen to the liver cells either by glycogen or by glucose enemas from 25 per cent to 50 per cent in strength four times a day or as thiamine, which aids in the metabolism of carbohydrates and a greater deposition of glycogen into the liver cells, may bring about a condition which checks it completely and entirely with a simple and harmless agent.

In one of my last visits to the late Dr. Joseph B. De Lee, this new treatment for hyperemesis was related to him and he was very much interested. He suggested that it be tried at the Maxwell Street Maternity Center.

MEYER M. MARBEL, M.D., Chicago.

POTENTIAL DANGER OF SELF MEDICATION WITH FLUORIDES

To the Editor:—The subject of fluorine and its relation to dental caries is one which is receiving wide publicity in both the professional and the lay press. It has come to my attention that some dentists are advising their patients to use mouth washes containing sodium fluoride for self medication, and some of the solutions prescribed are as potent as 1 and 2 per cent

solutions. Sodium fluoride is a highly toxic substance, and while its application in safe concentrations, under strict control by competent personnel, may prove to be a useful therapeutic agent, under other circumstances it may be definitely harmful.

DAVID B. AST, D.D.S., Albany, N. Y.
Assistant Director for Oral Hygiene, Division
of Maternity, Infancy and Child Hygiene.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

EXAMINING BOARDS IN SPECIALTIES

Examinations of the Examining Boards in Specialties were published in THE JOURNAL, July 15, page 810.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, Oct. 24-26. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, September 5. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

CONNECTICUT: * Endorsement. New Haven, July 25. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven.

DELAWARE: Dover, Oct. 10-12. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * Washington, November. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

INDIANA: Indianapolis, Jan. 3-5. Exec. Sec., Board of Medical Registration and Examination, Miss Ruth V. Kirk, 301 State House, Indianapolis 4.

IOWA: * Iowa City, Sept. 25-27. Dir. Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Nov. 2-3. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, Sept. 11-12. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville.

LOUISIANA: September. * Sec., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MICHIGAN: * Ann Arbor, July 24-26. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

MINNESOTA: * Minneapolis, Aug. 29-31. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSOURI: St. Louis, Sept. 18-20. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 2-4. Sec., Dr. O. G. Klein, First Nat'l Bank Bldg., Helena.

NEBRASKA: * Omaha, Sept. 26-28. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln.

NEVADA: Carson City, Aug. 7. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Board of Registration in Medicine, Dr. D. G. Smith, 77 Main St., Nashua.

NEW MEXICO: * Santa Fe, Oct. 9-10. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NORTH CAROLINA: Raleigh, Sept. 11-12. Sec., Dr. W. D. James, Hamlet.

OHIO: Examination. Columbus, Sept. 26-29. Endorsement. Columbus, Oct. 3. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, Sept. 16. Sec., Dr. J. D. Osborn, Jr., Frederick.

OREGON: * Portland, July 26-27. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

SOUTH CAROLINA: Charleston, Sept. 11-13. Sec., Dr. N. B. Heyward, 1329 Blandena St., Columbia.

VERMONT: Burlington, Sept. 12-14. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: Richmond, Sept. 19-22. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WEST VIRGINIA: Charleston, Oct. 2-4. Commissioner, Public Health Council, Dr. John E. Offner, State Capitol, Charleston 5.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

DISTRICT OF COLUMBIA: Washington, October. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

FLORIDA: Gainesville, Nov. 4. Final date for filing application is Oct. 20. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

MICHIGAN: Ann Arbor and Detroit, Oct. 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

RHODE ISLAND: Providence, Aug. 16. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Explosion of Bulb in Diathermy Lamp.—The patient suffered from arthritis and neuritis and at intervals for about four years submitted to diathermy treatments administered by the physician defendant in his office. Dec 6, 1940 she lay on a table with her back exposed to an infra-red deep therapy lamp about 2½ feet distant, having a 1,000 watt bulb. After she had been in this position for about fifteen minutes the light bulb exploded without warning and hot glass fell on her body, causing severe burns. She and her husband instituted an action for malpractice against the physician. In an attempt to produce evidence tending to prove negligence on the part of the physician, she called him as her witness and the physician testified that he had made no inspection of the light globe that exploded and could make none, other than turning it on to see if it was working, that he did not know what caused the globe to explode, that he had never heard of one exploding before, that there was no noticeable defect in the globe, that he had had globes of this type burning continuously for as much as seven hours without trouble, that there are hundreds of lamps of this type in use, that he frequently used this same lamp ten or twelve times a day, that the bulb in question was a standard one in general use, and that no manufacturer, so far as he knew, had ever theretofore recommended the screening of such lamps as a precautionary measure. At the close of the plaintiff's testimony the court entered a judgment for the physician, and the plaintiff appealed to the district court of appeals, fourth district, California.

The sole question to be decided here, said the appellate court, is whether or not the fact that the lamp globe exploded so speaks for itself as to justify an inference that the explosion occurred because of some negligent act on the part of the physician. In other words, under the facts of the present case can the doctrine of *res ipsa loquitur* be applied? The plaintiffs argued that this is one of that class of malpractice cases in which the acts done are so patently negligent that no expert testimony is required and from the occurrence of the incident alone negligence on the part of the physician may be inferred, citing *Alcis v Ryan*, 8 Cal (2d) 82, 64 P (2d) 409, *Ragin v Zimmerman*, 206 Cal 723, 276 P 107, *Moore v Steen*, 102 Cal App 723, 283 P 833, *Brown v Shorthidge*, 98 Cal App 352, 277 P 134, and *Bence v Denbo*, 98 Ind App 52, 183 N E 326. In the cases cited by the patient, said the court, respectively, a sponge was left in a patient during an operation, burns were suffered from too long or improper exposure to an x-ray machine, a surgeon while removing tonsils had knocked out one of the patient's teeth, and an x-ray machine had been so handled that it was permitted to fall on the face of the patient. In those cases no proof of a special standard of care was required and the doctrine of *res ipsa loquitur* was held applicable. The plaintiffs argued that the doctrine applicable in those cases is applicable also in cases in which injury has been caused by mechanical equipment which is under the exclusive control of the defendant. In support of that argument they first cited *Chanin v Krupin*, 4 Cal App (2d) 322, 40 P (2d) 904, in which the plaintiff was burned while being given a permanent wave in a beauty shop. The court in that case said

The injury was one which in the natural course of things would not have occurred had defendants used due care, and plaintiff was therefore entitled to recover, unless the defendants offered a satisfactory explanation to overcome the presumptive evidence of their negligence.

The plaintiffs next cited *Helm v Pacific Gas & Elec Co*, 21 Cal App (2d) 711, 70 P (2d) 247, where the plaintiff had been injured while standing on a sidewalk by a falling portion of the glass globe of an electrolier. It was held in that case, in effect, that the danger could have been known by the defendant and that the question of whether proper inspection had

been made was one for the jury. The plaintiffs next cited *Wundas v Galston & Sutton Theatres*, 35 Cal App (2d) 533, 96 P (2d) 170, in which the injury involved was the result of a block of plaster falling from the ceiling. In holding the doctrine of *res ipsa loquitur* applicable in that case, the court there observed that plaster does not ordinarily fall from a ceiling if proper care is used to see that the ceiling is safe. In the cases cited by the plaintiffs, said the appellate court, it is pointed out that the *res ipsa loquitur* doctrine is applicable where it appears that the accident is of a kind which ordinarily does not occur in the absence of negligence on the part of the one having the management or control of the thing which caused the injury. The doctrine is further based on the theory that the defendant, having charge of the instrumentality in question, either knows the cause of the accident or had a means of knowledge in that connection which was superior to that possessed by the injured party. But, as was said in *Johnson v Ostrom*, 128 Cal App 38, 16 P (2d) 794

The converse of this rule is likewise true. If the evidence affirmatively shows that operator or manager of the instrumentality by means of which the injuries are inflicted has no superior knowledge or by the exercise of reasonable care is unable to secure information regarding the cause of the accident, or the evidence establishes the fact that the complainant possesses all the knowledge or information thereof which is reasonably accessible to the operator of the machine, then the doctrine of *res ipsa loquitur* has no application.

In this case, continued the court, there was no evidence tending to show why this light globe exploded or tending to show that the accident was one which, according to common experience, would not ordinarily occur except through some fault of the physician. In other words, there was no evidence justifying any inference that any amount of care which might have been exercised by the physician would have prevented the explosion or that he failed to use proper care. There is nothing in the evidence or in common experience which would justify an inference that an inspection could have been made which could have been of any avail in disclosing any defect which might have been expected to cause such an explosion. As is well known, such a light globe is a sealed unit which cannot be inspected in any manner which might be material here.

The physician, continued the court, possessed no knowledge as far as anything which caused this accident is concerned which was superior to that possessed by his patient. There is nothing in common experience which would suggest that the explosion which here occurred was one which would not have taken place except for the negligence of the physician, and it may not even be said that the physician had the management or control of the instrumentality in the sense that he had it within his power to control anything which caused the explosion. The complaint filed by the plaintiffs alleged that the physician so carelessly and unskillfully used, operated and controlled the electric lamp that he caused the injuries to his patient. There is no evidence to support that allegation and under the circumstances which here appear no inference is possible that the explosion occurred only because of negligence on the part of the physician and the doctrine of *res ipsa loquitur* is consequently not applicable.

The judgment in favor of the physician was accordingly affirmed.—*Crouce v McBride*, 149 P (2d) 69 (Calif., 1944)

Society Proceedings

COMING MEETINGS

- Aero Medical Association of the United States St Louis Sept 4-6 Dr David S Brachman 5440 Cass Ave, Detroit 2, Secretary
- American Congress of Physical Therapy, Cleveland Sept 6-9 Dr Richard Kovacs, 2 East 88th St New York 28 Secretary
- Delaware Medical Society of Lewes Sept 11-12 Dr W O La Motte, 601 Delaware Avenue, Wilmington Secretary
- National Medical Association St Louis, Aug 14-17 Dr John T Givens 1108 Church St, Norfolk Va, Secretary
- Oregon State Medical Society, Portland Sept 2-3 Dr Thomas D Robertson, St Vincent's Hospital, Portland Secretary
- Utah State Medical Association Salt Lake City, August 24-26 Dr D G Edmunds 610 McIntyre Bldg, Salt Lake City Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

207:561-700 (May) 1944

- *Clinical Aspects of Pain in Chest: I. Angina Pectoris. T. R. Harrison.—p. 561.
- Infarction of Lateral Wall of Left Ventricle: Pathologic and Electrocardiographic Study. H. W. Thomson and H. Feil.—p. 588.
- Abdominal Aortic Aneurysm: Rupture into Jejunum Preceded by Occult Blood in Stool. G. I. Hiller and R. M. Johnson.—p. 600.
- Test for Vascular Tone in Humans and Its Application to Study of Vascular Diseases with Special Reference to Etiology and Prevention of Thrombophlebitis. M. Naide, with technical assistance of Ann Sayen.—p. 606.
- Acute Thrombocytopenic Purpura in Infectious Mononucleosis: Report of Case. P. C. Lloyd.—p. 620.
- "Heat Resistance" of Erythrocytes: Specific Test for Recognition of Marchiafava's Anemia. R. Hegglin and C. Maier.—p. 624.
- Homologous Serum Jaundice: Review of Literature and Report of Case. J. R. Neefe, T. G. Miller and F. W. Chornock.—p. 626.
- Blood Studies in Allergy: II. Presence in Allergic Disease of Atypical Lymphocytes and Symptoms Suggesting Recovery Phase of Infectious Mononucleosis. T. G. Randolph and Elizabeth Barber Gibson.—p. 638.
- Relationship of Lymphogranuloma Venereum Infection to Incidence of Hyperglobulinemia. P. B. Beeson and E. S. Miller.—p. 643.
- Chlorophyll: An Experimental Study of Its Water Soluble Derivatives; I. Remarks on History, Chemistry, Toxicity and Antibacterial Properties of Water Soluble Chlorophyll Derivatives as Therapeutic Agents. L. W. Smith.—p. 647.
- Tumor Occurring in Superior Pulmonary Sulcus. I. Imber.—p. 654.

Pain in Chest, Particularly in Angina Pectoris.—Harrison states that pain in the chest is present in from 15 to 25 per cent of all adult patients who need hospitalization. A study has been carried on for a number of years and has dealt with several hundred patients. The present report presents an analysis of 77 patients with angina pectoris. The author applies the term angina pectoris to a condition characterized by recurrent attacks of discomfort in or near the chest, commonly induced by conditions which impose an additional burden on the heart, ordinarily dependent on disturbance of the oxidative processes in the myocardium and always attended by the likelihood of sudden death. The pain was felt in the substernal location in only about half of the patients. Pain entirely limited to the pericardial, axillary or abdominal regions did not occur. The pain usually lasted only a few minutes, rarely longer than thirty minutes. No patient had pain lasting for only a few seconds. Pain of great intensity was exceptional, the discomfort being mild or minimal in more than half of the cases. The discomfort was constrictive or heavy in character in only about 50 per cent of the cases. Frequently the pain was of an aching quality. In addition to the generally recognized "trigger" factors of exertion, eating, emotion and cold, the recumbent posture and glucose deficiency were found to be common precipitating causes of the seizures. In exceptional cases anginal attacks with typical electrocardiographic changes may be induced by spontaneous hypoglycemia in patients who have no seizures with severe effort and no evidence of structural heart disease. The act of eating may precipitate anginal attacks in certain cases and may prevent them in others. Pain induced by the sitting or standing position or aggravated by breathing, coughing or swallowing can usually be ascribed to disorders other than angina pectoris. The most important features in the diagnosis of angina pectoris are (1) the history of relationship to effort, (2) the short duration of the pain and (3) the demonstration that the amount of muscular effort required to induce the pain is increased by glyceryl trinitrate. A large percentage of patients with angina pectoris also suffer from chest pain due to other disorders. Such disorders may either be related to angina pectoris (as in the case of myocardial infarction and

reflex disturbances of the skeletal system) or unrelated to it (as in the case of gallbladder disease, hiatal hernia, esophageal spasm and the like). Because of the frequent coexistence of two causes of chest pain, one of them may be overlooked unless unusual care is employed in obtaining the history.

American Journal of Physiology, Baltimore

141:165-296 (April) 1944. Partial Index

- Cold Sweating in Motion Sickness. A. Hemingway.—p. 172.
- Effect of Vitamins of B Complex on Resistance of Organism to Anoxia. H. F. Hailman.—p. 176.
- Diuretic Action of Thyroid in Diabetes Insipidus. K. Hare, D. M. Phillips, J. Bradshaw, G. Chambers and Ruth S. Hare.—p. 187.
- Recruitment of Mammalian Nerve Fibers. A. Rosenbluth.—p. 196.
- Gastric Emptying Time of Man at High and Normal Environmental Temperatures. A. Henschel, H. L. Taylor and A. Keys.—p. 205.
- *Successful Treatment of So-Called "Irreversible" Shock by Whole Blood Supplemented with Sodium Bicarbonate and Glucose. R. Levine, B. Huddleston, H. Persky and S. Soskin.—p. 209.
- Estimation of Anti-Fatty Liver Factor of Pancreas and of Pancreatic Juice by Use of Completely Depauperized Dog Maintained with Insulin. M. L. Montgomery, C. Entenman and I. L. Chaikoff.—p. 216.
- Orthostatic Circulatory Failure ("Gravity Shock") in Dog. H. S. Mayerson.—p. 227.
- Patterns of Arterial Pressure Pulse. W. F. Hamilton.—p. 235.
- Cardiac Insufficiency in Vitamin E Deficient Rabbit. O. B. Houchin and P. W. Smith.—p. 242.
- Effects of Hexoses on Respiratory Exchange of Rhesus Monkeys. T. M. Carpenter and C. G. Hartman.—p. 249.
- *Effect of Aluminum Hydroxide Gel on Gastric Secretion. W. L. Adams and B. B. Clark, with technical assistance of Dorothy B. Blair and J. J. Romano.—p. 255.
- Effect of Vitamins and Sex Hormones on Dietary Achromotrichia in Mice. B. Lustig, A. R. Goldfarb and B. Gerstl.—p. 259.
- Toxic Substances from Muscle. D. F. Pen, J. Campbell and Jeanne F. Manery.—p. 262.
- Effect of Measurement Technics on Values for Red Cell Diameter, with Some Observations on Relationship Between Cell Diameter and Other Factors in Blood Picture. Jane M. Leichsenring, Eva G. Donelson and Lucille M. Wall.—p. 270.
- Pepsin Secretion and Enterogastrone. M. I. Grossman, H. Greengard, J. R. Woolley and A. C. Ivy.—p. 281.
- Effect of External Constriction of Blood Vessel on Blood Flow. R. E. Shipley and D. E. Gregg.—p. 289.

Treatment of "Irreversible" Shock.—Levine and his associates induced an irreversible stage of shock in 64 dogs. All the animals died when no treatment was given, and only 25 per cent survived when whole blood was used to replace the total amount bled. When the desired criteria for "irreversible" shock were obtained, different groups of animals were treated in different ways. Except for the first control group all animals were reinfused with the total amount of blood which had been withdrawn minus the amount lost by sampling and by unavoidable waste. In the second control group the difference between the amount of blood withdrawn and that available for reinfusion was replaced by isotonic solution of sodium chloride. The third group was given whole blood and sodium succinate, the fourth group whole blood and sodium lactate, the fifth group whole blood and sodium bicarbonate, the sixth group whole blood and dextrose, the seventh group whole blood and dextrose and sodium bicarbonate. Throughout these experiments the animals either died within eighteen hours after the institution of therapy or survived indefinitely. The authors think that their results hold promise of improved mortality statistics for the treatment of far advanced shock on the battlefield. Because whole blood is not readily available under those conditions, blood plasma supplemented with sodium bicarbonate and dextrose must be tested. It is suggested that a sweetened alkaline drink might be of prophylactic value for injured men in early shock, for whom prompt blood volume replacement is not likely to be available. The authors stress that acidosis, while not a cause of shock, is an important factor in determining the reversibility of far advanced shock. Whole blood supplemented by sodium bicarbonate and dextrose resulted in the survival of 62.5 per cent of dogs brought to the stage of so-called irreversible shock.

Effect of Aluminum Hydroxide Gel on Gastric Secretion.—Adams and Clark investigated the effects of aluminum hydroxide gel in moderate dosage when it was administered three times daily after a test meal for five consecutive days. The authors used Cope pouch dogs to determine the effect of moderate doses of sodium hydroxide gel on pouch secretion. They found that no depression of secretory activity occurred either during or after the administration of the antacid. The administration of moderate doses of aluminum hydroxide gel

was accompanied by occasional increases in volume, total chloride, total base and free acid of the pouch secretion, but in the majority of experiments these increases were too small to be significant.

American Journal of Psychiatry, New York

100:1-200 (April) 1944. Partial Index

- American Journal of Psychiatry (Formerly American Journal of Insanity) 1844-1944. W. R. Duntun Jr.—p. 45.
Dorothea Lynde Dix; Servant of the Lord. C. O. Cheney.—p. 61.
Silas Weir Mitchell, 1829-1914: Father of Neurology and Mentor of Psychiatry in America. B. R. Tucker.—p. 80.
From Asylum to Hospital—A Transition Period. W. L. Russell.—p. 87.
Clifford Beers and American Psychiatry. A. H. Ruggles.—p. 98.
Rise to Person and Concept of Wholes or Integrates. A. Meyer.—p. 100.
Mental Deficiency Over a Hundred Years: Brief Historical Sketch of Trends in This Field. R. H. Haskell.—p. 107.
Contribution to History of Psychiatric Expert Testimony. H. M. Pollock and E. D. Wiley.—p. 119.
Psychiatry in Industry. V. V. Anderson.—p. 134.
Origins and Growth of Child Psychiatry. L. Kanner.—p. 139.
History of Mental Hygiene in the Schools. W. C. Ryan.—p. 144.
Development of Extramural Psychiatry in United States. G. S. Stevenson.—p. 147.
History of Psychiatric Education in the United States from 1844 to 1944. F. G. Ebaugh.—p. 151.
Some Trends of Psychiatry. A. Myerson.—p. 161.
Societal Evolution and Psychiatry. L. E. Hinsie.—p. 174.
Psychiatry as State Medicine. A. Deutsch.—p. 184.
Narrative for a Specialist. A. Gregg.—p. 191.
What of the Future for American Psychiatry? C. M. Hincks.—p. 195.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

51:407-536 (April) 1944

- Roentgenologic Appearance of Gastrointestinal Tract in Scleroderma. C. H. Hale and R. Schatzki.—p. 407.
Roentgen Diagnosis of Fetal Meconium Peritonitis. E. B. D. Neuhauser.—p. 421.
Incidental Finding in Urograms Concerning Uterus. J. T. Marr and U. V. Portmann.—p. 426.
Roentgenogram and Some Chronic Nontuberculous Pulmonary Conditions. A. Rest.—p. 434.
Cardiac Mensuration. C. F. Sherman and E. F. Ducey.—p. 439.
Simple Graphic Method for Measuring Area of Orthodiagram. M. Mazer and Blanche B. Wilcox.—p. 444.
Acute Suppurative Arthritis of Hip in Childhood. P. E. Russo.—p. 447.
Fractures of Radial and Ulnar Axes: Unifying Concept, with Description of Certain Carpal Injuries, Including Parallel and Gear Rotations of Carpal Bones. M. S. Burman, S. E. Sinberg, W. Gersh and A. A. Schmier.—p. 455.
*Treatment of Cancer of Larynx by Roentgen Irradiation: Report of 5 Year End Results. J. V. Blady and W. E. Chamberlain.—p. 481.
*Irradiation Sickness: Hypothesis Concerning Basic Mechanism and Study of Therapeutic Effect of Amphetamine and Dextrodesoxyephedrine. E. L. Jenkinson and W. H. Brown.—p. 496.
Variations in Sensitiveness of Different Skin Areas to Erythema Dose of Roentgen Radiation. J. B. Herrmann and G. T. Pack.—p. 504.

Roentgen Irradiation in Cancer of Larynx.—Blady and Chamberlain present a five year survival study on 36 cases of cancer of the larynx treated with radiation. The treatment with radiation was selected for one or several of the following reasons: (1) presence of metastases in the neck on admission; (2) disease process too extensive for surgery; (3) suggested radiosensitivity of the tumor as determined by biopsy; (4) advanced age and poor operative risk; (5) complicating cardiac and renal disease; (6) recurrence after laryngofissure; (7) operation refused by the patient. Twenty-three patients had cancer of the intrinsic and 13 of the extrinsic larynx. The term "cancer of the intrinsic larynx" denotes origin of the tumor on the vocal cords, the ventricles or the subglottic region, while "cancer of the extrinsic larynx" includes origin on the arytenoids, aryepiglottic folds, base of the epiglottis and upper surface of the piriform sinuses. Intrinsic cancer is predominantly of squamous cell, grade 2, variety, whereas the extrinsic is usually of grade 3 or 4. Squamous cell carcinoma grade 2 is a radiosensitive growth when limited to the intrinsic larynx. Of the four recurrences in the intrinsic group, three were grade 3 and one was grade 2. Metastases are infrequently observed in intrinsic laryngeal cancer. Of patients who did not develop metastases at any time, 71 per cent survived more than five years. Of the extrinsic group 46 per cent had metastases on admission and none of these patients survived. For the intrinsic group treated with roentgen radiation, the net five year survival without evidence of recurrent or metastatic disease is 59 per cent while for the extrinsic group it is 25 per cent.

Amphetamine and Dextrodesoxyephedrine in Irradiation Sickness.—Jenkinson and Brown investigated irradiation sickness because of the prevalence of physical incapacity among patients receiving intensive roentgen therapy. An inhibiting effect on the gastrointestinal tract indicated possible benefit to the nausea and vomiting. Dextrodesoxyephedrine was studied because of its similarities to amphetamine. The authors review the therapeutic effect of amphetamine or dextrodesoxyephedrine on 69 patients with symptoms of irradiation sickness. A proposed hypothesis concerning the basic mechanism of irradiation sickness indicates the role of local and general increased capillary permeability. The pharmacology of amphetamine and d-desoxyephedrine indicates that they are of therapeutic value in irradiation sickness by their action in maintaining the peripheral circulating blood volume and preventing visceral stasis and splanchnic dilatation. The effectiveness is reduced by anemia, by nutritional and metabolic changes associated with debilitation, and by extensive metastases. The present study indicates that the management of irradiation sickness should include (a) A critical evaluation of each patient's physical condition prior to roentgen therapy. Corrective measures should be instituted in the presence of anemia, dehydration, acidosis, the deficiencies associated with debilitation and nutritional disturbances. (b) A prophylactic use of small oral doses of amphetamine or d-desoxyephedrine, increasing the dose with the first evidence of increasing weakness or lassitude. (c) A prophylactic use of the water soluble vitamins, which are readily depleted by disturbance of the digestive and absorptive mechanism. Evaluation of the therapeutic effect of amphetamine and d-desoxyephedrine indicates that the greatest value is in combating the weakness, exhaustion and lassitude of irradiation sickness.

American Review of Soviet Medicine, New York

1:293-384 (April) 1944

- Rehabilitation of War Wounded in Soviet Union. A. N. Sukhov.—p. 293.
*Problem of Night Vision. K. Kekcheev.—p. 300.
*Nature and Origin of Altitude Pains. D. E. Rosenblum.—p. 303.
*Effect of Anoxemia on Vestibular Apparatus. A. Popov and I. Borshchevski.—p. 310.
*Effect of Hypoxemia on Secondary C Hypovitaminosis. Y. E. Bronstein.—p. 314.
Occurrence in Urine of Type Specific Precipitinogen in Scarlet Fever. E. M. Lampert.—p. 317.
Natural Immunity Against Diphtheria in Remote Areas of Uzbekistan. C. R. Gildin, A. I. Grigorieva and V. V. Voiloshnikova.—p. 322.
Eradication of Malarial Focus in North (Province of Archangel). E. D. Levenson, E. I. Fastovskaya, A. I. Khovanskaya and N. N. Dukhanina.—p. 329.
Syndrome of Endocrine Origin. N. A. Shereshevski.—p. 337.
Phototherapy of Burns. P. M. Leonenko.—p. 340.
Gunshot Wounds of Maxillofacial Region with Spinal Complications. G. D. Aronovich.—p. 344.
Closure of Granulating Wounds by Means of Button Sutures. D. A. Entin.—p. 351.
Secondary Treatment of Wounds. A. B. Vishnevski.—p. 355.
Role of Soviet Investigators in Development of Blood Bank. C. R. Drew.—p. 360.

Night Vision.—Kekcheev points out that methods developed in prewar days for changing visual thresholds by application of caffeine or strychnine had been only of laboratory interest. The literature offered a few suggestions for altering the threshold of certain sensory organs by stimulating other sensory organs. It was established that the stimulation of any external sensory organ (hearing, smell, touch and taste) may augment or diminish the thresholds of visual perception. The author showed that a change in the acuity of night vision produced by stimulation of other sensory organs was not an isolated process but was part of a diffuse autonomic reflex. The thresholds of night vision varied with the pulse rate, the blood pressure level, respiration and electrical resistance of the skin to direct current. Not all stimuli were equally effective in raising the threshold of night vision. Taste, cold and proprioceptive (moderate effort) stimuli were chosen as being the most practical and convenient. During drowsiness the sensitivity of the eye shows a sharp decrease. The application of cold not only restores vision and hearing but terminates drowsiness as well. By applying taste, cold and proprioceptive stimuli the dark adaptation period was reduced to from five to six minutes. The acceleration of the dark adaptation period is of a great practical importance under battle conditions, for instance for night fliers, who must discern the enemy bomber in the gloom of the night in so-called dazz-

ling of the eyes by a searchlight, rocket or the flash of tracer bullets. Experiments carried out in 1943 in the writer's laboratory in Moscow showed that the use of red eyeglasses five to ten minutes after the white light has begun to act promptly restored vision to its normal threshold and occasionally intensified it. Thus the same white light which had previously destroyed the sensitivity of the dark adapted eye increased that sensitivity when filtered through red glasses.

Nature and Origin of Altitude Pains.—Ascents to a rarefied atmosphere and prolonged stay at low barometric pressure may produce pains which are most frequently localized in joints and surrounding tissues. In some cases the pain in the joint is accompanied by acute subjective disorders, such as dizziness, pallor, excessive perspiration, nausea and a feeling of faintness. Malaise, weakness, dyspnea, chills and high temperature continue for several hours on return to normal pressure. The pain disappears, but a feeling of awkwardness and heaviness in the involved extremity persists for from one to two hours. Some investigators regard altitude sickness as the result of hypoxemia, others believe that altitude pains are a manifestation of a rheumatoid syndrome. Still another hypothesis is that altitude pains are symptoms of caisson disease in which, on decompression, nitrogen bubbles are released in the tissues. The author reports observations on aviators and experiments on goats, dogs and rabbits. He assumed that the caisson theory was correct and that the pains resulted when nitrogen was released from the fluids and tissues through decompression. The experiments were based on the further assumption that altitude pains would not occur if the nitrogen was "washed out" of the organism prior to the ascent. Ten men did not have altitude pain after nitrogen elimination, although they did have pain in almost all control ascents at lower altitudes. Most of the animals in the author's experiments developed the classic picture of caisson disease. Postmortem studies on the animals which died as a result of rapid decompression revealed typical symptoms of acute caisson disease. Numerous gas emboli were found in the vascular system and in the synovial fluid of the joints in all cases. The adipose tissue, especially in the abdominal cavity, was friable on palpation.

Annals of Surgery, Philadelphia

119:481-640 (April) 1944

Newer Aspects of Ruptured Intervertebral Disks. W. E. Dandy.
—p. 481.

Spondylolisthesis: Analysis of 59 Consecutive Cases. G. A. Caldwell.
—p. 485.

Symposium on Chemotherapy

Report on Healing of Wounds as Influenced by Use of Sulfonamides and Cotton Thread Sutures. J. E. Cannaday.—p. 498.

Chemotherapy of Intracranial Infections: Observations on Use of Sulfonamides and of Penicillin Under Various Experimental Intracranial Conditions. C. Pileher.—p. 509.

Clinical and Laboratory Experiences with Succinylsulfathiazole. H. L. Archer and E. P. Lehman.—p. 518.

Treatment of Burns Complicated by Fractures of Extremities. H. J. Warthen Jr.—p. 526.

*Postoperative Salt Intolerance. F. A. Collier, K. N. Campbell, H. H. Vaughan, L. Vivian Job and C. A. Moyer.—p. 533.

Treatment of Metastatic Carcinoma of Neck. J. B. Brown and F. McDowell.—p. 543.

Congenital Atresia of Esophagus, with Tracheoesophageal Fistula: Transpleural Operative Approach. A. O. Singleton and M. D. Knight.—p. 556.

*Chronic Cystic Mastitis, with Particular Reference to Classification. W. H. Cole and L. J. Rossiter.—p. 573.

Surgical Management of Cryptorchidism. R. E. Cone.—p. 591.

Extraskeletal Osteogenic Sarcoma: Report of Case of Osteogenic Sarcoma of Lip. W. H. Parson and J. C. Henthorne.—p. 595.

Value of Nonprofit Blood Banks for Civilian Use as Planned by Office of Civilian Defense. W. B. Russ.—p. 603.

Postoperative Salt Intolerance.—Collier and his associates show that although the body of a normal person is generally capable of handling relatively large amounts of isotonic saline solutions without showing significant derangement in the regulation of body functions there are many patients who are incapable of tolerating relatively small excesses of salt solution during the immediate postoperative period. The type of illness that may follow the administration of saline or isotonic solution of three chlorides varies. There are three predominant and fairly distinctive symptoms and sign complexes. Because of the relatively high incidence of salt intolerance following a general

anesthetic, no isotonic saline solution or isotonic solution of three chlorides should be given during the day of operation and during the subsequent first two postoperative days. The fluid requirement of the patient is met with dextrose solution. If a significant loss of extracellular fluid occurs during the foregoing period, it is replaced with 0.5 per cent sodium chloride solution to which 50 Gm. per liter of dextrose has been added. Isotonic saline solution (0.9 per cent) or isotonic solution of three chlorides is used to replace extracellular fluid loss after the postoperative urinary suppression has disappeared, usually after the second postoperative day. Great care must be used in administering isotonic saline solution and isotonic solution of three chlorides to patients who are hypoproteinemic, anemic, acidotic or oliguric. The authors recommend that the correction of uncompensated extracellular fluid deficiency states be made on the basis of the physiologic response to test doses of the appropriate salt solution rather than on the basis of the plasma chloride, the carbon dioxide combining power, the non-protein nitrogen, the plasma protein or the hemoglobin levels.

Chronic Cystic Mastitis.—Cole and Rossiter make a plea for a classification which would be of clinical as well as of pathologic significance. Their classification is based on two factors: the predominance of the pathologic lesion present and the relative danger of transformation to carcinoma. The following groups are included: (1) adenofibrosis, (2) benign parenchymatous hyperplasia, (3) precancerous hyperplasia and (4) cystic disease. A single specimen may exhibit gradations of all four types described, but with few exceptions one of them predominates. This classification is based on the supposition that carcinoma may at times be superimposed on chronic cystic mastitis. Carcinoma can and does develop in certain types of chronic cystic mastitis. It is most apt to develop in precancerous hyperplasia, which is in itself a benign disease. This lesion consists of an epithelial hyperplasia which resembles that seen in carcinoma. The hyperplasia exceeds the benign limits characterizing parenchymatous hyperplasia yet lacks the invasiveness and anaplasia of cancer. This is a controversial group, clinically speaking, as it is impossible to tell which of these cases will go on to actual malignancy. The authors have seen this lesion in close proximity to unquestioned cancer and have seen cancer develop in breasts known to harbor such changes through biopsy at some previous time. In view of the possibility of the development of carcinoma in precancerous hyperplasia, the authors recommend simple mastectomy if removal of a nodule reveals a hyperplasia of the precancerous type. Adenofibrosis and cystic disease are least susceptible to malignant change and, fortunately, are readily distinguishable clinically and pathologically from parenchymatous hyperplasia and precancerous hyperplasia.

Archives of Neurology and Psychiatry, Chicago

51:305-414 (April) 1944

Dystonia: I. Historical Review: Analysis of Dystonic Symptoms and Physiologic Mechanisms Involved. E. Herz.—p. 305.

Id.: II. Clinical Classification. E. Herz.—p. 319.

Delirium: I. Electroencephalographic Data. J. Romano and G. L. Engel.—p. 356.

Id.: II. Reversibility of Electroencephalogram with Experimental Procedures. G. L. Engel and J. Romano.—p. 378.

Biochemical Aspects of Glutamic Acid Therapy for Epilepsy. H. Valsch and J. C. Price.—p. 393.

*Fatalities Associated with Electric Shock Treatment of Psychoses: Report of 2 Cases, with Autopsy Observations in 1 of Them. A. Gralnick.—p. 397.

Tremor and Babinski Sign in Alcoholic Patients: Incidence and Interpretation. A. P. Friedman and J. E. Roy.—p. 403.

Fatalities in Electric Shock Treatment of Psychoses.—Gralnick reports two deaths associated with electric shock treatment. The first patient died one week after her fourteen treatment in a hyperpyretic state associated with status epilepticus; the second two days after his second treatment. No definite conclusion can be made with respect to the first case because of the absence of autopsy evidence. The acute nature of her death suggests some connection between the two events. It is possible that in this patient, as in a few of the cats studied by Alpers and Hughes, hemorrhages occurred in the hypothalamic region which were sufficient to cause the hyperpyrexia and status epilepticus. The fact that the patient died one week after her last treatment speaks against this possibility, but the

exact time of occurrence of hemorrhage is not known. It is also possible that the current produced damage to the cells in the region of the already labile heat regulating center. These changes could have been associated with punctate hemorrhages and subsequent edema to produce the same result. Necropsy studies on the second patient disclosed evidence of cerebrovascular syphilis and other changes which were possibly due to the treatment itself. The alterations were not sufficient to account for death. The cause of death after electric shock treatment is still obscure. Electric treatment has attendant serious dangers and should not be given to patients with a history of vascular or cerebral disease.

Archives of Physical Therapy, Chicago

25:199-252 (April) 1944

- Mechanics in Relation to Derangement of Facet Joints of Spine.* Jessie Wright.—p. 201.
**Fever and Sulfadiazine Therapy in Resistant Gonorrhea.* S. Licht and V. Dick.—p. 207.
Histamine Ion Transfer, Five Year Evaluation. I. F. Hummon Jr.—p. 212.
Flexibility of Healthy Children. A. D. Gurewitsch and Margaret A. O'Neill.—p. 216.
Physical Medicine in Neuropsychiatric Diseases, with Special Reference to Veterans Administration Beneficiaries. A. B. C. Knudson.—p. 222.

Fever and Sulfadiazine Therapy in Resistant Gonorrhea.—Licht and Dick treated 119 young men with recently acquired, sulfonamide resistant, gonorrhea by combined drug and fever therapy. All had failed to respond to two or more courses of sulfonamide compounds, each course consisting of at least 20 Gm. of drug given in five days. On the day preceding fever treatment fluids were forced up to 3,000 cc. and carbohydrates were given in the form of sweetened orange juice. During the fever treatment fluids were given by mouth in the form of 0.3 per cent iced salt solution. An intake of more than 400 cc. per hour was discouraged because of the regurgitation seen after forced drinking. Oxygen was given continuously through a nasal catheter. Originally the authors administered 10 Gm. of sulfadiazine in divided doses during the eighteen hours immediately preceding treatment. This produced excessively high blood concentration in some patients. A trial administration was made to determine the amount of medication required to attain a blood concentration of from 11 to 12 mg. per hundred cubic centimeters when fever would be started. When the drug is administered up to the hour of treatment it remains in the stomach and may provoke vomiting. By changing the schedule of drug ingestion so that the last dose was given at or before 5 a. m. instead of at 7 a. m., the incidence of vomiting during treatment was reduced. The duration of the fever should depend on the tolerance of the patient. Eight hours is most desirable, but there should be no hesitancy in discontinuing it and repeating the treatment if necessary.

Canadian Medical Association Journal, Montreal

50:297-402 (April) 1944

- Biologic Significance of Human Constitution in Disease.* G. Draper.—p. 297.
Treatment of Cancer of Prostate. C. Huggins.—p. 301.
Role of Medical Research in Medical Center. C. F. Code.—p. 308.
Women in Industry. Lydia G. Giberson.—p. 313.
**Treatment of Silicosis by Aluminum Powder.* D. W. Crombie, J. L. Blaisdell and G. MacPherson.—p. 318.
Hypotension After Removal of Renal Calculus. A. MacKay, L. D. Proctor and N. W. Roome.—p. 328.
Isolated Aneurysm of Superior Mesenteric Artery as Complication of Subacute Bacterial Endocarditis. S. T. Laufer and R. P. Smith.—p. 332.
Ophthalmology in Royal Canadian Air Force. J. V. V. Nicholls.—p. 335.
Laxecretor Action of Paregoric. E. M. Boyd and M. L. MacLachlan.—p. 338.
Cyanosis of Unusual Origin in Pregnancy (with Report of Case of Sulfhemoglobinemia). W. B. Ayre.—p. 344.
Clinical Value of Cholangiography. D. Macdonald.—p. 349.
Psychosis in Hypoparathyroidism. E. P. Scarlett and W. J. Houghtling.—p. 351.
Peptic Ulcer Problem: Series of 181 Cases from Royal Canadian Navy. R. A. G. Lane.—p. 353.
Grauloma of Umbilicus. S. Gold.—p. 354.

Aluminum Powder in Treatment of Silicosis.—A clinic was established at Timmins, Ont., where a large number of silicotic subjects could be observed. Only men who were still exposed to silica dust and who had uncomplicated silicosis with

measurable pulmonary disability were chosen for treatment with aluminum powder. Before treatment was instituted, each worker was carefully studied and respiratory function tests were carried out. The latter included a study of total lung volume and pulmonary ratios as described by McCann and his co-workers. Pulmonary ventilation studies were also made. Selected men were treated with daily inhalation of fine aluminum powder, freshly ground from small aluminum pellets in a specially constructed mill. Treatment was given just before or after a shift. Treatment was begun by five minutes' inhalation through the powder mill. This period was gradually increased to thirty minutes daily and was continued in some cases almost a year, a small number of men receiving approximately 300 treatments, the majority receiving about 200. About 50 patients have received this form of therapy, 34 of whom have completed the course prescribed. It was shown conclusively that the administration of aluminum powder is entirely harmless. Out of 34 cases studied 19 have shown clinical improvement, apparent chiefly in the lessening or disappearance of shortness of breath, cough, pain in the chest and fatigue. A reduction in the incidence of colds and a gain in weight have also been observed in many patients. While the condition of 15 patients has remained stationary, it must be emphasized that they are no worse and their condition has not progressed in spite of continuous employment in silica dust during the period of investigation. Respiratory function tests, repeated at intervals of about every three months, have shown improvement in 12, or about one third, of the treated cases. While 22 remained stationary, they are no worse in spite of continued exposure to silica dust. Six of a group of 9 controls, untreated by aluminum, have shown progression of their disease while under observation. Aluminum dust cannot be regarded in any sense as a "cure" for silicosis as far as restoring to normal lung tissue which has already undergone fibrotic change is concerned. Its use is followed by beneficial results in a significant proportion of cases, chiefly in the amelioration of symptoms and in the increased capacity to work.

Journal of Urology, Baltimore

51:333-446 (April) 1944

- Classification of Renal Neoplasms: Clinical and Pathologic Study Based on 199 Cases.* M. M. Melicow.—p. 333.
Tumors of Renal Pelvis. D. R. Melen.—p. 386.
Tuberculoma of Ectopic Kidney. M. Nachman.—p. 395.
Clinical Significance of Congenital Anomalies of Kidney and Ureter. O. S. Culp and P. E. Hiebert.—p. 397.
Suprapubic Cystostomy Preliminary to Transurethral Resection in Selected Cases of Prostatism. J. A. Lazarus.—p. 404.
Diverticulum of Female Urethra. J. G. Menville and J. D. Mitchell Jr.—p. 411.
**Patent Urachus: with Report of 2 Additional Cases.* D. W. Atcheson.—p. 424.
Relationship of Urinary Tract Infections to Urolithiasis. W. J. Erickson.—p. 431.
Experiences with Ombredanne Operation for Hypospadias. M. Muschat.—p. 437.
Prevention of Experimental Nephrosclerosis with Methyltestosterone. H. Selye and E. M. Rowley.—p. 439.
Effect of Seminal Constituents on Spermatozoa. R. L. Brown.—p. 443.

Patent Urachus.—Patent urachus is rare, only 148 cases having been reported in the last four hundred years. Atcheson reports 2 army privates with this abnormality observed within one month at his station hospital. The generally accepted theory is that the urachus is the result of the bladder developing in the region of the umbilicus and later withdrawing deep into the pelvis. The result is a cone shaped outgrowth from the dome of the bladder with its apex at the umbilicus. Eventually the entire tube becomes smaller until it finally closes off from the bladder. When it does not close, it is known as a patent urachus. There are four possible anomalies which may result from this process going astray: 1. The tube may open into the bladder but not reach the umbilicus. 2. It may open at the umbilicus and not reach the bladder. 3. It may extend from the bladder to the umbilicus as a fistula. 4. It may close off in sections and form small cysts. Patent urachus may easily be confused with intra-abdominal conditions, such as acute appendicitis and cystic tumors, if a history of drainage from the umbilicus is not obtained. In some cases the urachus will change from one type to another. In the 2 cases presented both existed as fistulous types, as evidenced by the history of

urine draining in early life. As the inflammatory changes occurred, the fistula sealed off and the sinus type resulted. It is suggested that the peritoneum be routinely opened at a point below the umbilicus and the attached tract and umbilicus be excised in toto. An important part of the therapy is the treatment of the infection in the tract before the surgical intervention. This can be done by drainage and irrigation with a solution such as azochloramide.

New York State Journal of Medicine, New York

44:945-1056 (May 1) 1944

- Radium in Present Day Therapeutics. D. Quick.—p. 981.
Management of Carcinoma of Corpus Uteri. J. A. Corscaden.—p. 986.
Crude Liver Extract as Aid to Arsenic and Heavy Metal Therapy. G. D. Astrachan.—p. 992.
Treatment of Nonpyogenic Infections with Radiation Therapy. I. I. Kaplan.—p. 1004.

Crude Liver Extract as Aid to Metal Therapy.—

Astrachan presents data on the value of crude liver extract in patients with intolerance to arsenicals or heavy metals. He reports observations on 114 patients. Crude liver extract is a useful supportive measure. It prevents some manifestations due to intolerance to arsenicals or heavy metal, especially in cases of gastrointestinal disturbances (improvement in 60 per cent of the cases). A few patients with pruritus and mild skin manifestations were also benefited by liver therapy. Best results were obtained in cases in which the largest number of liver extract injections were administered. These injections cause a decrease of the icterus indexes and thus improve the impaired function of the liver. Caution must be observed in administering liver extract. In some cases the intravenous method of administration may be used.

Ohio State Medical Journal, Columbus

40:397-500 (May) 1944

- Conservation of Industrial Manpower. C. P. McCord.—p. 413.
Absenteeism and the Doctor. F. F. Tallman.—p. 419.
Occupational Disease Problems and How to Meet Them. R. T. Johnstone.—p. 425.
Organized Air Evacuation Service of Army Air Forces. R. L. Meiling.—p. 434.
Parathyroid Adenoma—Report of Unusual Case. D. Goldman and A. Sapadin.—p. 437.
Clyster in Early Medical Practice. P. D. Jordan.—p. 441.

Physiological Reviews, Baltimore

24:169-296 (April) 1944

- Benign Meliturias. J. C. Boek.—p. 169.
Extrinsic Factors That Influence Carcinogenesis. H. P. Rusch.—p. 177.
Distribution of Vitamin A in Tissue As Visualized by Fluorescence Microscopy. H. Popper.—p. 205.
Histopathology of Radiation Lesions. S. Warren.—p. 225.
Hread Problem in War and in Peace. S. Lepkovsky.—p. 239.
Changes in Fetal Circulation at Birth. D. H. Barron.—p. 277.

Histopathology of Radiation Lesions.—Warren discusses lesions caused by types of radiations used therapeutically, such as electromagnetic radiation of a wavelength ranging from 10 to 0.05 angstroms, corpuscular radiation as the alpha and beta radiation from radium or certain of the temporarily radioactive isotopes, and neutrons. Tissues or tumors are classified as radiosensitive if there is gross change with radiation of less than 2,500 roentgens given under ordinary therapeutic conditions. Such radiation does not usually injure most tissues permanently. A tissue is considered radioresponsive if such alteration occurs with a range between 2,500 and 5,000 roentgens and radioresistant if over 5,000 roentgens is required for a response. At or above this dose some permanent injury is done to a number of normal tissues. It is important not to confuse radiosensitivity of a tumor with radiocurability of that tumor. Thus a lymphosarcoma is highly radiosensitive but rarely cured, while epidermoid carcinoma grade 1 of the lip is resistant but often cured if the dose is sufficient. Many of the tumors that respond well to radiation initially will recur, usually in a form more resistant to radiation than were the cells of the original tumor. While in general the radiosensitivity of tumors tends to follow that of the type cell from which they are derived, striking variations exist. There are also variations in sensitivity determined by the stroma of the tumors.

A relatively acellular supporting tissue, such as cartilage or bone, gives a less favorable therapeutic reaction than does a cellular one, as newly formed connective tissue or invaded muscle. For example, a basal cell carcinoma of the skin is easily cured by radiation when located on the cheek, whereas one occurring on the forehead invading the frontal bone is extremely resistant. Increased amounts of intercellular substance in the supporting tissue of the tumor or secondary infection tend to increase resistance, whereas a greater degree of vascularity tends to decrease resistance.

Public Health Reports, Washington, D. C.

59:513-540 (April 21) 1944

- Hospitals in Public Health Panorama. W. F. Draper.—p. 513.
Experimental Leptospirosis in Hamsters (*Cricetus Auratus*). C. L. Larson.—p. 522.

59:541-572 (April 28) 1944

- Experiments on Pharmacologic Action of Succinylchlorimide. E. F. Stohman and M. I. Smith.—p. 541.
Patch Test in Contact Dermatitis. L. Schwartz and S. M. Peck.—p. 546.

59:573-608 (May 5) 1944

- Airplane Dusting with Paris Green for Control of *Anopheles Quadrimaculatus* Say in Water-Chestnut Covered Areas of Potomac River During 1943. W. C. Murray and H. Knutson.—p. 573.
Therapeutic Efficacy of Penicillin in Relapsing Fever Infections in Mice and Rats. H. Eagle, H. J. Magnuson and Arlyne D. Musselman.—p. 583.

Penicillin in Relapsing Fever in Mice and Rats.—Eagle and Magnuson studied the efficacy of penicillin in white rats and mice experimentally infected with *Borrelia novyi*, which causes relapsing fever in North America. The total dosages of penicillin which "cured" 50 per cent of white rats and mice infected with *Borrelia novyi* were 130,000 units and 100,000 units per kilogram respectively. Approximately 400,000 units per kilogram was necessary to cure more than 95 per cent of the animals. This was half the dose which killed a significant proportion of the rats. If these results can be translated to man, they imply that the curative dose of penicillin in man would be on the order of 25,000,000 units. Unless relapsing fever is more amenable to treatment in man than it is in these experimental animals, or unless other strains of the organism prove more susceptible to penicillin, the therapeutic use of the drug would not appear warranted except in arsenic resistant cases, at least until such time as it is available in larger quantities.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

19:329-548 (March) 1944

- Ringworm of Scalp in Puerto Rico. A. L. Carrión and M. Silva.—p. 329.
Surgical Treatment of Rectal Stage of Lymphogranuloma Venereum: Abdominoperineal Transanal Resection with Perineal Colostomy and Preservation of Anal Sphincter: Report of Cases. J. N. Benítez and L. R. Guzmán López.—p. 428.
Studies on Syphilis in Puerto Rico: III. Survey Based on Results of Flocculation Tests Among 19,395 Selectees and Volunteers During Year 1941. O. C. Mandry and J. L. Janer.—p. 483.
Available Iron in Some Tropical Foodstuffs. J. A. Goyco.—p. 502.
Mortality from Heart Disease in Puerto Rico as Shown by Vital Statistics. M. de la Pila Iglesias.—p. 508.

Review of Gastroenterology, New York

11:77-148 (March-April) 1944

- Effect of Hypertension on Prognosis of Bleeding Peptic Ulcer. H. A. Rafsky and M. Weingarten.—p. 93.
Influence of Nervous System on Gastrointestinal Tract. L. M. Davidoff.—p. 102.
Some Comments on Roentgen Diagnosis of Disease of Gastrointestinal Tract. J. S. Lehman.—p. 106.
Spontaneous Healing in Nonspecific Granuloma of the Terminal Ileum. A. O. Wilensky.—p. 108.
Indications for Vertical Gastroscopy. J. C. Pierson and G. T. Pack.—p. 111.
Infectious Mononucleosis Simulating Acute Infectious Jaundice. H. A. Monat.—p. 114.
Gallbladder Disease and Arthritis. S. Weiss.—p. 116.

Hypertension in Prognosis of Bleeding Ulcer.—Rafsky and Weingarten stress that in evaluating cases of bleeding ulcer it is necessary that the severity of bleeding and complicating diseases be considered. They report observations on 476 patients.

with bleeding peptic ulcer of whom 80, or 16.8 per cent, had systolic blood pressures of hypertensive level. This is in contrast to an estimated incidence of 40 per cent of hypertensive or prehypertensive levels in the general population. Probably many more of these 476 patients were hypertensive, but no hypertension was observed during and shortly after their bleeding episodes. The authors compare the mortality and the severity of bleeding of patients with and without hypertension; also the comparative mortality below and above 50 years of age. Hypertension in a patient with bleeding peptic ulcer has little effect on the severity of the bleeding. The gross mortality in patients under 50 years of age with hypertension was increased, but this high mortality was due largely to the presence of complicating diseases not found in patients without hypertension. In patients over 50 years of age the mortality was approximately the same for those with and without hypertension, because arteriosclerosis leads to the same complications as hypertension. Indirect citrated transfusions of blood and intravenous infusions of saline solution and dextrose should be used freely to combat anemia and shock in bleeding peptic ulcer without fear of their effect on blood pressure.

Surgery, Gynecology and Obstetrics, Chicago

78:449-560 (May) 1944

- Fecal Fistula. A. L. Lichtman and J. R. McDonald.—p. 449.
Effect of Certain Drugs on Motility of Jejunioileum in Normal Man. F. Huidobro, E. Montero and F. Cuevas.—p. 471.
Treatment of War Wounds at U. S. Naval Base Hospital No. 2. J. E. Porter.—p. 477.
*Wound Disruption: Study of 55 Cases at Cincinnati General Hospital. S. Tashiro.—p. 487.
Pyogenic Coxitis: II. Indications for Surgical Treatment in Residual and Chronic Stages and End-Results of Reconstruction in 53 Patients. P. H. Harmon and C. O. Adams.—p. 497.
*Hemorrhagic Shock: Relative Effect of Saline, Washed Red Cells and Heparinized Plasma in Dogs. F. W. McKee, C. F. Laycock, T. G. Martens and R. J. Nicholl.—p. 509.
*Administration of Alkaline in Sulfadiazine Therapy. J. H. Rohr and F. Christopher.—p. 515.
Clinical Syndrome Associated with Rare Anomaly of Vena Portae System. J. Fraser and A. K. Brown.—p. 520.
Healing of Abdominal Wall After Loop Colostomy: Experimental Study. A. Slive, D. Shock and S. J. Fogelson.—p. 525.
Inert Metals in Direct Fixation of Mandibular Fractures. A. E. Strock.—p. 527.
Placement of Incisions in Neck. E. Holman.—p. 533.
Ventral Hernia Due to Normal Banding of Abdominal Muscles. L. M. Zimmerman, B. J. Anson, E. H. Morgan and C. B. McVay.—p. 535.
Correction of Abnormally Prominent Ears. F. Young.—p. 541.
Variations of Male Sacrum: Their Significance in Caudal Analgesia. G. S. Letterman and Mildred Trotter.—p. 551.

Wound Disruption.—Tashiro applies the term disruption to cases in which any portion of the peritoneal cavity or its contents presented in the wound. Synonyms for this condition are dehiscence, rupture, eventration, evisceration, avulsion and separation. A review of the operating room files of the Cincinnati General Hospital for the ten years that began with January 1933 shows that there were 55 eviscerations of laparotomy wounds during that period. There were 40 males and 15 females. Some observers believe that males are more subject to wound disruption than females. Sixty per cent of the cases observed by the author occurred during winter and spring. In northern Europe likewise there is a higher incidence of eviscerations during these seasons. Hartzell and his associates stress the role of protein and vitamin C deficiency. The work of Ingalls and his colleagues directs attention to hypoproteinemia. Some dispute the influence of subnormal plasma protein, others ascribe a major role to vitamin C deficiency and still others believe that strains and intra-abdominal pressure play a part. Lahey thinks that seratomas and hematomas are the cause of disruption. Freeman suggested incomplete closure of the peritoneum as the causal factor and others suggest allergy to catgut, decreased pH and infection. The author comes to the conclusion that wound disruption results from a combination of factors including postoperative strains, primary or associated debilitating disease, hypoproteinemia and vitamin C deficiency. He also gained the impression that those patients who survive secondary closure are apparently predisposed to intestinal obstruction and hernia.

Saline Solution, Washed Red Cells or Heparinized Plasma in Shock.—McKee and his associates report the effect of saline solution plasma and washed red cells on dogs which were in a state of posthemorrhagic circulatory collapse, commonly referred to as shock. Whole blood or plasma has been accepted as the treatment of choice in shock. Washed red cells have been considered a rather poor blood substitute in spite of the fact that the majority of the effects of hemorrhagic shock can be explained on the basis of anoxia. The authors think that the efficacy of a blood substitute depends on its ability to maintain a satisfactory circulatory state. They produced hemorrhagic shock in dogs in the following manner: Under local anesthesia, the femoral artery and vein are cannulated. The animal is bled from the artery until the blood flow has practically ceased and is then perfused with 23 cc. per kilogram of 0.9 per cent sodium chloride solution through the vein to wash out more red cells and plasma. When the bleeding has again practically ceased, the artery is ligated and the volume of test solution equivalent to the first bleeding given immediately into the vein. Following this the vein is ligated and the wound is closed. In these experiments washed red cells suspended in isotonic solution of sodium chloride are found to be more effective than either isotonic solution alone or heparinized plasma in overcoming shock produced by a single severe hemorrhage. Replacement of the oxygen carrying capacity of the blood appears to be more important than the restoration of the normal plasma protein level under the conditions of these experiments. As an emergency measure isotonic solution of sodium chloride is shown to be effective in promoting temporary recovery from hemorrhagic shock as produced by a single massive hemorrhage.

Administration of Alkaline in Sulfadiazine Therapy.—According to Rohr and Christopher renal complications of sulfadiazine therapy can be prevented by the production and maintenance of an alkaline urine, and alkalinity of the urine can be maintained either by giving from 4 to 19.5 Gm. of sodium bicarbonate daily or, as suggested by Bywaters in 1942, by the use of one-sixth molar sodium *r*-lactate intravenously. Since immediately after operation patients cannot be given oral medication, the author aimed to determine a practicable method for rapidly producing alkaline urine for the safe intravenous administration of sodium sulfadiazine and for keeping the urine alkaline up to the time the sodium bicarbonate could be given orally. In 20 cases following operation the pH of 422 specimens of urine was determined, beginning twenty-four hours prior to and continuing for five days after starting alkaline therapy. Each specimen was tested with nitrazine paper within a few minutes after being voided. Specimens were examined microscopically at least once daily for sulfadiazine crystals, red blood cells and casts. The authors found that one-sixth molar sodium *r*-lactate intravenously was efficient for the rapid production of urinary alkalinity in that 1,000 cc. maintained urinary alkalinity for an average of twenty-four hours. At least 24 Gm. daily of sodium bicarbonate was necessary to maintain urinary alkalinity after the intravenous administration of fluids was discontinued. Renal complications were not found after sulfadiazine administration when the urine was rendered alkaline. Sodium sulfadiazine should not be mixed with or come in contact with one-sixth molar sodium *r*-lactate in the intravenous set.

Tennessee State Medical Assn. Journal, Nashville

37:113-146 (April) 1944

- Causes of Low Back Pain and Sciatica. R. W. Billington.—p. 113.
Use of Sulfonamides in Treatment of Subacute Bacterial Endocarditis. J. B. Riggsbee.—p. 117.
Significance of Rh Factor. J. W. Norcross.—p. 123.
Thyroiditis: Its Differentiation from Malignancy. F. H. Lahey.—p. 125.

West Virginia Medical Journal, Charleston

40:133-168 (May) 1944

- Organizing County for Cancer Control. J. L. Neff.—p. 133.
Flocculation Test for Syphilis. W. L. Hardesty.—p. 138.
Appraisal of Public Relations Programs for Medical Profession in America. E. H. Skinner.—p. 141.
Why Not a Fasting Blood Sugar? H. Peterson.—p. 146.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Children's Diseases, Dorking, England

41:1-30 (Jan.-March) 1944

Acute Gastroenteritis in Children: Review of 411 Cases, 1936-1943, and Plan of Investigation and Treatment. W. Gunn.—p. 1.
Diphtheria Immunization. H. W. Swann.—p. 10.

British Medical Journal, London

1:483-512 (April 8) 1944

Symptomless Incompatible Transfusion and Resultant Changes in Isoagglutinin Titer. R. Drummond.—p. 483.
Anxiety; Alopecia Areata; Neurofibromatosis: Auricular Fibrillation: Description of Patient. D. Hubble and C. H. Rogerson.—p. 486.
Milk Borne Outbreak of Gastroenteritis Due to Salmonella Dublin. P. L. Sutherland and F. M. Berger.—p. 488.
Early Treatment of Wounds of Chest in Middle East. R. B. Scott.—p. 490.
Visceral Leishmaniasis (Kala-Azar) in an Adult Contracted in Malta. F. E. Lipscomb and M. O. J. Gibson.—p. 492.
Management of Field Surgical Unit. J. Howell and B. M. Truscott.—p. 501.

Lancet, London

1:457-488 (April 8) 1944

*Toxipathic and Trophopathic Hepatitis. H. P. Himsworth and L. E. Glynn.—p. 457.
Traumatic Ischemia in Forearm and Leg. S. Stanford.—p. 462.
*Diagnosis of Adrenal Tumors Estimation of 17-Ketosteroids in Urine. Nancy H. Callow and A. C. Crooke.—p. 464.
Pressure Measurement in Small Anatomic Cavities. D. S. Evans and K. Mendelsohn.—p. 465.
Bilateral Frontal Leukotomy in Indian Patients. M. V. Govindaswamy and B. N. Balakrishna.—p. 466.
Acute Orogenous Labyrinthitis and Meningitis: Case. M. Ellis.—p. 468.
Meningococcal Epididymitis. S. M. Laird.—p. 469.

Toxipathic and Trophopathic Hepatitis.—Himsworth and Glynn compare necrosis of the liver in experimental animals with similar conditions in man. Experimental necrosis of the liver can be produced by certain poisons of chemical or vital origin or by lack of a nutritive factor contained in protein. The term "toxic necrosis" is generally used to describe all types of necrosis associated with exposure to poisons; it is not limited to those produced by the direct action of a poison on the liver cells. A term is required with the latter restricted meaning, and the authors propose the term "toxipathic." A term is also required to distinguish necrosis due to deficiency of a nutritive factor. For this the authors suggest the term "trophopathic." Experimental toxipathic hepatitis develops in rats rapidly after exposure to poison. The liver shows a diffuse zonal necrosis. In survivors recovery is complete. Repeated exposures to poison, however, produce a diffuse hepatic fibrosis. Experimental trophopathic hepatitis develops only after a long latent period. The liver shows massive necrosis which always leads to postnecrotic scarring and, in severe cases, to nodular hyperplasia. In man the hepatitis following exposure to such poisons as chloroform, phosphorus and carbon tetrachloride has the features characteristic of toxipathic hepatitis. The zonal hepatitis seen in eclampsia and infective hepatitis and after treatment with the organic arsenical preparations also appears to be of this type. In man massive hepatic necrosis, and its sequel nodular hyperplasia, may be attributed to a trophopathic hepatitis. There is suggestive evidence that this can arise as the result of a dietary deficiency, but most commonly it develops as a complication of a preceding illness, and it is then to be regarded as a conditioned deficiency disease distinct and separate from the illness which it complicates. Restriction of the intrahepatic circulation is an important predisposing cause of trophopathic hepatitis in man. It most commonly results from the swelling of liver cells previously injured by a toxipathic agent. Pregnancy, vomiting and anorexia contribute to the development of a trophopathic hepatitis by reducing the amount of protective nutriment available to the liver cells. An increased metabolic rate may have the same effect by increasing the general bodily requirements for protein. It is also possible that certain poisons, such as selenium and trinitrotoluene, can produce the condition by combining with components of protein so as to render them inutilizable.

Estimation of 17-Ketosteroids in Urine in Diagnosis of Adrenal Tumors.—According to Callow and Crooke a high level of excretion of 17-ketosteroids in the urine is recognized as evidence of the presence of a secreting tumor of the adrenal cortex. This level is not an infallible guide. It was misleading in 2 cases. In a woman with basophilism associated with a carcinoma of the adrenal cortex the level was deceptively low, and in a girl with virilism without an adrenal tumor it was deceptively high. The authors report 14 cases with basophilism or virilism in which excretion of 17-ketosteroids was at the expected level. Of these 3 had tumors of the adrenal cortex; in the remaining 11, adrenal tumors had been suspected but were absent. Talbot attempted to increase the specificity of 17-ketosteroid estimation for diagnosis of adrenal tumor by determining the proportion of 3-beta-hydroxy-17-ketosteroids in the total fraction. The authors found that the 3-beta-hydroxy-17-ketosteroids formed about 10 per cent of the total for normal men, women or children, while in 2 girls with adrenal tumors the proportion was 50 per cent and 63 per cent 3-beta-hydroxy-17-ketosteroids. The authors think that Talbot's modification of the assay is promising and suggest that the isolation of dehydroisoandrosterone from urine or the finding of a high ratio of beta to alpha ketosteroids in urine is of fundamental importance in the diagnosis of tumors of the adrenal cortex.

Schweizerische Medizinische Wochenschrift, Basel

73:435-472 (April 10) 1943. Partial Index

Less Common Internal Injuries of Knee Joint. E. Baumann.—p. 435.
Etiology of Pseudarthroses. H. Brun.—p. 437.
Surgery of Cervical Ribs. A. Brunner.—p. 439.
Left Hemicolectomy in One Stage. P. Decker.—p. 441.
*Syndrome of Symptomatic Sprue in Lymphosarcomatosis of Small Intestine and Mesenteric Lymph Nodes. R. Fritzsche.—p. 442.
Collateral Circulation After Obstruction of Abdominal Aorta. E. Hagenbach.—p. 445.
*Lack of "Hereditary Transmission" of Cancer. E. Hanhart.—p. 446.
Eosinophil Bone Granuloma. C. Henschen.—p. 451.
Hazards of Surgery of Nonincarcerated Hernia in Patients Past 60 Years of Age. F. Merke.—p. 458.
*Importance of Intrasternal Blood Transfusion. T. Naegeli.—p. 460.
Inflammation of Auditory Nerve Associated with Tuberculosis of Lungs. E. Schlittler.—p. 464.
Surgical Indications in Bilateral Nephrolithiasis and in Lithiasis of Solitary Kidneys. F. Suter.—p. 466.

Symptomatic Sprue in Lymphosarcomatosis of Small Intestine.—Fritzsche reports lymphosarcomatosis of the small intestine and of the mesenteric lymph nodes in a man aged 45. The diagnosis of endemic sprue was based on chronic fatty diarrhea, swelling of the abdomen, emaciation, mild anemia of secondary type and a roentgenologic study which demonstrated a severe jejunitis, ileitis and colitis. There were no signs of tetany, and the pigmentation was not abnormal. The very low blood pressure suggested adrenal insufficiency. There was little obstruction of the lacteals, but the disturbance in the absorption of fats could be explained by the extensive lesions of the intestinal mucosa and of the mesenteric lymph nodes. The necropsy revealed extensive lymphosarcomatosis of the small intestine, particularly of the jejunum and of the upper portion of the ileum (lymphoblastic type of lymphosarcoma). There were numerous lymphosarcomatous nodules with superficial and penetrating ulcerations. Erosion of the smaller vessels was noted in some of the nodules. There was considerable effusion of blood into the intestine. The sarcomatous process involved the retroperitoneal, pancreaticoduodenal, periaortic left iliac, inguinal, the upper cervical and the right peritracheal lymph nodes. Ascites was not excessive. There was a severe subchronic inflammation of the small intestine, particularly of the jejunum and of the upper portion of the ileum. Death occurred within five months after the occurrence of the first symptoms. The rapid course may be responsible for the absence of abnormal pigmentation and tetany. Osteoporosis was not noted on clinical examination and the necropsy. Its absence may be explained by the fact that pathogenic changes of calcium metabolism deficiency need not be present because of considerable amounts of calcium being stored in the bones. Roentgenologic examination revealed alterations in the small intestine. Microscopic postmortem studies revealed lymphosarcomatous tissue in the lymph nodes. The diagnosis of endemic sprue should be based

not alone on symptoms but also on pathologic and etiologic data. The sprue syndrome may be present in cases of malignant disease of the small intestine and lymph nodes in which the involvement is extensive; i. e., in cases in which the functional impairment of the lymph stream interferes considerably with the absorption of fats.

Hereditary Transmission of Cancer.—Hanhart reports a study of descendants of 121 married couples in which both partners had cancer. A total number of 590 children sprang from these marriages, 359 of whom lived to be over 40 years of age, 286 over 50 and 188 over 60. Only 30 of the 121 couples had children who developed cancer. The total number of the children was 43, 26 men and 17 women. Two of them developed cancer in their forties, 3 in their fifties, 11 in their sixties and 27 in their seventies. Except for a few, all died from cancer. Only one seventh of the 188 children who lived to their seventies and both of whose parents suffered from cancer developed cancer likewise, whereas six sevenths of the persons did not at the age at which the hazard of cancer is greatest in Switzerland. The average age to which both partners of the 121 parents attained was 66 years. The average age of the 30 couples whose children developed cancer was 68 years. The average age to which their children with cancer lived was 61 years. It cannot be concluded from this limited material that the descendants may develop cancer at an earlier age than their parents. A single case may occasionally be significant in some other direction. Two children, a son of 65 and a daughter of 60 years, were in good health although their father had primary multiple malignant epitheliomas and their mother died from cancer of the uterus. The series of 121 married couples with cancer represented the incidence in the canton of Glarus. The average cancer expectancy of their 286 children when past 50 years of age amounted to around 13 per cent, whereas cancer expectancy of the population of the city of Zurich (about 320,000 people) was about 20 per cent. Both partners of the 33 out of the 121 married couples developed cancer of the stomach, and only 11 per cent of their children did likewise. Thus Julius Bauer's concept of a special predisposition of certain organs to cancer was not demonstrated. The results of this study are much like those of investigations on twins. They suggest absence of a specific hereditary predisposition to cancer.

Intrasternal Blood Transfusion.—Naegeli emphasizes advantages of intrasternal transfusions in the treatment of patients in whom no suitable veins for injections are available. The method is indicated in dehydration of various types as in many intestinal diseases whose incidence is high in wartime. Intrasternal infusion of human serum is the method of choice in severe burns with extensive skin lesions. Continuous intrasternal transfusion is preferable to intravenous drip in treating restless patients and patients with peritonitis. A patient with the needle in position may safely assume a lateral position and may eat. The method is contraindicated in any disease of the sternum and in aortic aneurysm. Introduction of a small amount of sterile fluid into the mediastinum by piercing the inner plate with the needle is not harmful. Amounts up to 1,000 cc. of human serum, or of sodium chloride solution (tutofusin), were given in one to one and a half hours with a 20 cc. syringe and in five to eight hours by a drip irrigator. The needle should be inserted in the middle of the sternum at the level of the second or third interspace. A mild pain felt by the patient when blood is aspirated offers a fair indication that the point of the needle has entered the bone marrow.

Medicina, Madrid

12:69-142 (Feb.) 1944. Partial Index

Clinical Indications of Sternal Puncture: Report of Acute Aleukemic Leukemia. M. F. Fernández and F. C. Otermin.—p. 69.

*Importance of Early Diagnosis of Leprosy. F. Contreras and J. Guillén.—p. 89.

Early Diagnosis of Leprosy.—Contreras and Guillén emphasize the importance of early diagnosis of leprosy because it is curable in the early stage. Leprosy is acquired only by direct or indirect contact. Children and young adults, especially those poorly nourished and living in unhygienic surroundings and having frequent contacts with leprosy patients, are the most frequent victims of the contagion. Enlargement of the inguinal

lymph nodes, induration of the cubital nerves, infiltration and slow depilation of the ends of the eyebrows, erythematous spots, symmetrical zones of anesthesia in certain areas on the limbs, hyperesthesia of the bones, chronic rhinitis and depilation of the armpits are the early signs of leprosy. The intracutaneous histamine test on a suspected leprosy spot gives a positive result, which consists of lack of peripheral erythema about the punctured spot, slow formation of a wheal, absence of local itching and rapid disappearance of the papule. *Lepra bacilli* are found in the nasal mucus with or without reactivation of the disease with potassium iodide (3 Gm. daily up to production of nasal catarrh) in the blood and in the secretions such as urine, semen and milk and from the cutaneous lesions. In pure nervous leprosy the bacillus can be found by a biopsy of an enlarged subcutaneous nerve.

Medizinische Klinik, Berlin

38:817-840 (Aug. 28) 1942. Partial Index

Methods of Resuscitation. R. H. Laun.—p. 817.

Digestibility of Dehydrated Vegetables. W. Heupke, H. Raschig, K. Andrae and W. Neumann.—p. 822.

Anesthetics in the Field. F. Nestmann.—p. 824.

Value of Electrocardiographic Investigations in Infectious Diseases. P. Laurentius.—p. 826.

*Diagnosis of Carbon Disulfide Poisoning. Rodenacker.—p. 828.

Diagnosis of Carbon Disulfide Poisoning.—Rodenacker states that the industrial use of carbon disulfide has greatly increased in connection with the artificial silk and related industries but that carbon disulfide poisoning is relatively rare. It occurs chiefly in connection with breakdown of equipment and with new installations. If the carbon disulfide content of inspired air exceeds 0.15 to 0.2 mg. per liter of air, acute and more or less delirious mental disturbances may result. Some men who have been exposed to carbon disulfide may go to a physician and tell of their fear of mental derangement, others may attack their co-workers, still others may take to nocturnal prowling or to irresponsible ranting and destruction. The author thinks that the derangement of the brain function is the result of the impairment of the organic lipoids in the tissues about the infundibulum by the fat dissolving carbon disulfide. This impairment subsides rapidly, for after three weeks the mental equilibrium is usually restored. The carbon disulfide delirium is accompanied by considerable loss in weight, probably as a result of damage to the metabolic centers in the midbrain, but this loss is also rapidly compensated during convalescence. Impairment of libido and of sexual potency also results from carbon disulfide poisoning. The diagnosis can be further corroborated by determining the carbon disulfide content of the air in the work shop. If it exceeds 0.2 mg. per liter, the xanthogenate determination of the blood and fluctuations in the weight will help to decide the diagnosis. The author also directs attention to the carbon disulfide neuritides. The nerves of the lower extremities, particularly the peroneal nerve, may become paralyzed, but these lesions likewise have a favorable prognosis. Carbon disulfide may also cause neuritis of the optic nerve with amblyopia. This form of amblyopia has a better prognosis than amblyopia caused by lead, arsenic or tobacco. Carbon disulfide may also cause colics, which are brought on by pylorospasm.

Münchener medizinische Wochenschrift, München

89:749-770 (Aug. 28) 1942. Partial Index

Results of Recent Investigations of Allergic Conditions. F. E. Haas.—p. 752.

Clinical Aspects of Trichinosis. C. Mumme and A. Sundermann.—p. 758.

Encephalitis Association with Trichinosis. Elisabeth Pohlmann.—p. 769.

*Complement Fixation Reaction with New Pig Antigen in Trichinosis. A. Gaase.—p. 761.

Complement Fixation Reaction with New Pig Antigen in Trichinosis.—Gaase reports results of complement fixation reaction with an antigen from the muscles of trichinosis pigs. The serums of 5 patients with the clinical diagnosis of trichinosis gave slightly positive or even negative results with rat antigen, but 100 per cent positive results were obtained with pig antigen. The pig antigen proved superior to the rat antigen. It is suggested that the pig antigen is closer than the rat antigen to the parasite causing trichinosis in man.

Book Notices

Inadequate Diets and Nutritional Deficiencies in the United States: Their Prevalence and Significance. Report of the Committee on Diagnosis and Pathology of Nutritional Deficiencies, Food and Nutrition Board. H. D. Kruse, Chairman. Bulletin of the National Research Council, Number 109, November 1943. Paper Pp 56 Washington, D. C.: The National Research Council, National Academy of Sciences, [n. d.].

This booklet represents an exhaustive piece of work by the Committee on Diagnosis and Pathology of the Food and Nutrition Board. There is brought together in this report all the available literature as well as much unpublished material concerning appraisal of the nutritional status of the population of this country. A much better perspective of this problem can be obtained from a survey of the reports so assembled. From the recorded data it can be seen that by whatever standard nutrition is judged there is widespread consumption of diets below the recommended levels. Numerous figures in tables and text of the report substantiate this fact. Studies made in the thirties as well as those in the past three years indicate that in the lower income groups only 20 to 30 per cent were receiving adequate diets. In the later studies the percentages of individuals in various levels of society who did not receive the recommended amounts of the various essential nutrients was surprisingly high. As a rule the inadequacies were found in the fruits and vegetables more frequently than in protein foods.

The result of these poor diets is found in the incidence of deficiency states. In the past recognition has been limited to the acute types of deficiencies, which are in the minority. With the means at hand today to recognize chronic, gradually developing states by refined chemical and clinical examinations, the prevalence of such conditions is found greater than has ever been suspected. The importance of these latent, chronic deficiencies to the health of a nation is shown by numerous quoted studies in which low levels of nutrition were found to have an undesirable effect on body states and functions.

This report serves the useful purpose of demonstrating the extent of nutritional deficiencies by sheer weight of evidence. It should serve to correct the opinion sometimes expressed that the extent of nutritional deficiencies is exaggerated. In the conclusion attention is drawn to the fact that our goal should not be just passable health but buoyant health. This objective can be more readily obtained by the practical application of the knowledge of nutrition which is being developed so rapidly rather than by indifference to these facts. Certain steps which might be taken to insure a better understanding of deficiency states are outlined.

A Provisional Classification of Diseases and Injuries for Use in Compiling Morbidity Statistics by The Committee on Hospital Morbidity Statistics. Medical Research Council Special Report Series No. 248. Boards. Price, 3s. Pp. 168. London: His Majesty's Stationery Office, 1944.

This special report accentuates what appears to be a fundamental conflict of purpose in the classification of diseases and injuries. The main interest of biometricians in classification lies in statistical summarizations based on diagnoses made either during life or after death from a wide variety of sources. For them disease or death lists are desirable which will allow ready grouping and from which conclusions of material statistical significance can be drawn regarding the incidence of disease, the causes of death and other information based on mass compilations. The clinician, on the other hand, wishes a classification of disease which will allow accuracy, completeness, and reasonable uniformity; it should be acknowledged that the individual clinician's diagnosis provides the source from which the biometrician works.

The Provisional Classification of Diseases and Injuries under discussion does not appear to recognize these issues clearly. It has drawn extensively from the International List of Causes of Death, from the Diagnosis Code of the United States Public Health Service and from English sources, on the one hand, and from the clinical classification of the Standard Nomenclature of Disease and the Standard Nomenclature of Operations, on the other. The resultant classification with code numbers lends itself better to the statistical purpose than it does to the clinical. Neoplasms, for example, are classified as to whether they are

malignant or nonmalignant and as to general location; but it is impossible to specify the more detailed location or nature of the tumor in most instances. As a clinician's classification, therefore, this is unsatisfactory. Indeed, that fact is pointed out in the preface in a somewhat equivocal manner: "It is not suggested that it [the provisional classification] should replace the Standard Nomenclature of Disease of the American Medical Association in those hospitals in which the latter has been adopted, and which have a record system justifying the use of that more detailed nomenclature." In spite of this statement it may be feared that the greater simplicity of this list will appeal to some physicians and will cause them to feel that more refined diagnoses are not necessary.

There are several features of disease classification which may be emphasized: 1. It is not feasible to employ exactly the same type of classification of causes of death as it is for diseases; e. g., many diseases of the skin never cause death. 2. There is a difference in purpose between classifications of disease as desired by the biometrician and by the clinician. 3. The principal problem of the classification of diseases and causes of death is how the needs of both groups can be satisfied. 4. The importance of this entire problem would justify an international conference when one becomes possible. Conferences of this type have been held periodically to revise the International List of Causes of Death. It may be advisable and feasible to enlarge the next such conference to include discussions of the wider subject.

An Atlas of Anatomy. By J. C. Bolleau Grant, M.C., M.B., Ch.B., Professor of Anatomy in the University of Toronto. In Two Volumes. Volume II: Vertebrae and Vertebral Column, Thorax, Head and Neck. Cloth. Price, \$5. Pp. 205-390, with 233 illustrations. Baltimore: William Wood & Company, 1943.

Professor Grant deserves thanks and congratulations for the production of an excellent atlas which undoubtedly will be of great service to medical students and clinicians. The second volume follows the general plan of the first, illustrating the vertebral column, the thorax, the neck and the head. The section on the vertebral column is relatively large and well done, and so the atlas will be welcomed by orthopedists and clinicians though less attention is given to muscles than in most works of this kind. This volume contains 233 drawings, of which 38 are diagrams, thus bringing the total for the two volumes up to 460. This number is about half that for Spalteholz's atlas and one third that for Toldt's atlas. But since the drawings are regional instead of systematic, more is represented in fewer plates. The regional plan accords well with the accelerated program now followed in the medical schools, under which there is not time for the old leisurely but effective method of repeated dissections.

The halftone illustrations are excellent. They are drawn by Mrs. Chubb, a former pupil of Max Broedel, on the basis of photographs of special dissections, and so may be relied on for accuracy. Under each drawing appears a list of points to be especially observed. These "observations" add much to the value of the plates. Slight variations from the normal and minor defects, such as are found in nearly every cadaver, are faithfully represented and the "observations" draw attention to them.

Each volume has its own index for convenient reference.

The atlas can be recommended to both medical students and practitioners.

Safe Convey: The Expectant Mother's Handbook. By William J. Carrington, A.B., M.D., F.A.C.S., Attending Gynecologist, Atlantic City Hospital, Atlantic City. Cloth. Price, \$2.50. Pp. 256. Philadelphia & New York: J. B. Lippincott Company, 1944.

The author has written a long book for the expectant mother, and the book does not appear well balanced. There is too much scientific material which the lay person cannot appreciate, such as discussion of calories, grams, milligrams and micrograms. The electrocardiogram, fluoroscope, x-rays, percentage of hemoglobin, renal function tests and many other laboratory procedures are discussed in a manner likely to bewilder the lay person. The author discusses the Caldwell and Molloy classification of pelvis, mechanism of labor, ovulation and fertilization. Two pages are devoted to a discussion of insulin. He states that in World War I a lack of vitamins led to the final surrender of the Germans; that vitamin E tends to prevent mis-

carriage. Positive proof has not to date been advanced supporting the relationship between abortion in the human being and lack of vitamin E. Formulas for feeding the baby and various diseases of the baby over the first year or more of life are described. Certain misstatements also are made, for example, the author states that in the bitterling test for pregnancy the fish menstruates; that Jane Seymour, third wife of Henry VIII, was delivered by cesarean section and survived. There is no proof that she had such an operation, and she died in the puerperium. Much of the scientific data could have been omitted and in future editions the author should check some of the questionable statements of fact.

Pharmacology. By Michael G. Mullins, M.D., A.B., A.M., Associate Professor of Pharmacology, College of Physicians and Surgeons, Columbia University, New York. With a foreword by Charles C. Lieb, A.B., M.D., Hoesack Professor of Pharmacology, College of Physicians and Surgeons, Columbia University. Oxford Medical Outline Series. Cloth. Price, \$4. Pp. 482. New York, London & Toronto: Oxford University Press, 1944.

This is not a textbook of pharmacology in the ordinary sense, since the author has followed rigidly the apparent intention of the publishers to have an outline of pharmacology. The volume is one of the Medical Outline Series. In presenting subject matter in this form the author gives his material in a manner which many times is not completely satisfactory, since an outline does not provide any opportunity for discussion of controversial subjects. There is considerable strain at times in applying the outline method, and frequently statements are made which are quite dogmatic and even trite, as for example on page 346:

D. Pharmacology of the Heart.

1. The heart acts as a pump.
 - a. It propels the blood from the venous into the arterial side.
 - b. It maintains a "normal" or adequate blood pressure.

In spite of the restrictions offered by the method of presentation, the author has been able to present pharmacology from the modern therapeutic approach, even to including forms of therapy other than the use of drugs. This point of view would make the book much more acceptable to the practicing physician than the old type of pharmacology textbooks. The author should be commended for completely casting aside the old apothecary system and using only the metric system throughout the book. Revision of the manuscript has apparently taken place up to the time of going to the press, because information on new drugs is available in this book.

Obstetric Cases. By D. MacMillan, Obstetrical and Gynaecological Surgeon, Christchurch Hospital, New Zealand. First Series. Cloth. Pp. 142. Christchurch, New Zealand: N. M. Peryer Limited, 1943.

This book is a compilation of thirty-one obstetric cases, most of which illustrate the mechanism of labor, the dystocia which resulted from abnormalities of this mechanism, and the manner in which the author treated these patients, but a wide variety of obstetric complications are reported. Among them are abdominal pregnancy, abruptio placentae, contracted pelvis, contraction ring, prolapse of the cord, eclampsia, failed forceps and placenta previa. In many instances the author recounts analogous cases reported by Robert Lee more than a hundred years ago. The first part of the book deals with training in obstetrics, rules in practice, causes of maternal and fetal mortality, signs of fetal distress and antepartum examinations. The conservative suggestions and pithy remarks of the author make the volume interesting and instructive.

Psychosomatic Diagnosis. By Flanders Dunbar, M.D., Med.Sc.D., Ph.D. With foreword by Leonard G. Rowntree, Colonel, Medical Reserve Corps, United States Army. Cloth. Price, \$7.50. Pp. 741. New York & London: Paul B. Hoeber, Inc., 1943.

The author is one of the leaders of investigation and progress in the field of psychosomatic medicine, having begun her work in this field at Columbia University some twelve years ago. Essentially psychosomatic medicine involves the codification of certain technics of medical practice that have prevailed since the beginning of time and the inclusion within this practice of some of the dynamic aspects of freudian technic. The work provides information on the taking of the history of a case, with special reference to factors in the field of psychosomatic medicine. The provision of actual examples of the use of the technic

in investigating cases makes the book especially useful. Special chapters are devoted to fractures, cardiovascular disease, coronary occlusion and rheumatic conditions. There are also several chapters concerned with contrasting profiles, personality profiles and conditions in which overlapping occurs. A useful bibliography and index complete the volume.

On the Influence of Trades, Professions, and Occupations in the United States, in the Production of Disease, 1837. By Benjamin W. McCready, M.D. With an introductory essay by Genevieve Miller, M.A. Boards. Price, \$1.75. Pp. 129, with portrait. Baltimore: Johns Hopkins Press, 1943.

In 1835 the Medical Society of the State of New York proposed as a subject for one of its annual prize essays "the influence of trades, professions and occupations in the United States in the production of disease." Benjamin W. McCready, M.D., of New York was declared the winner. His sixty page essay was published in the Transactions of the Medical Society of New York. Recently it was reprinted in book form. There had not been much consideration given to this subject in the United States up to this time, owing largely to the fact that industries were small and rather indefinite in nature. While McCready did give consideration to specific hazards and diseases of thirty-one employments, he dwelt largely on the sociological aspects, as improper housing, intemperance in laborers and exploitation of workers. The essay gives a remarkable insight into the conditions of labor and living in that period, many of which have been improved now by legislation and general elevation of standards of living. It was undoubtedly a realistic approach to the problem of occupational disease and presents a sharp contrast to present methods in this field, which has become greatly enlarged and defined.

Physical Foundations of Radiology. By Otto Glasser, Ph.D., Professor of Biophysics and Head of Department of Biophysics, Cleveland Clinic Foundation, Cleveland, Ohio, Edith H. Quimby, Sc.D., Associate Professor of Radiology (Physics), College of Physicians and Surgeons, Columbia University, New York, Lauriston S. Taylor, Ph.D., Chief of X-Ray Section, National Bureau of Standards, Washington, D. C., and J. L. Weatherwax, M.A., Philadelphia General Hospital and Graduate School of Medicine, University of Pennsylvania, Philadelphia. Fabrikoid. Price, \$5. Pp. 426, with 95 illustrations. New York & London: Paul B. Hoeber, Inc., 1944.

A knowledge of radiologic physics is a necessity for every physician who intends to use x-rays and radium as a therapeutic means. Such knowledge is of great aid in acquiring a familiarity with the technical use of the x-rays for diagnostic purposes. The authors of this book are leaders in their specialties and considered as constituting a court of appeals in questions relating to the physical aspects of roentgen diagnosis and roentgen and radium therapeutics. The chapters are well balanced. The information is offered in attractive form which should be understandable without difficulty by every physician. This book can be recommended highly to every one who practices or prescribes radiology.

Eat to Live: The Blue Book of Cooking. By Eula Bee Corban, Esther Robertson Hallock, and Mabel Martin. Cloth. Price, \$1.75. Pp. 140, with illustrations. New York: M. S. Mill Co., Inc., 1943.

This book of recipes is planned primarily for a period when many of the substances usually available in the diet are lacking, so that ingenuity and knowledge are necessary in planning diets. About 150 recipes are included in the book. Its most useful special feature, however, is the diagrammatic exemplification of the amount of essential ingredients contained in one portion of the dishes when eaten. This graphic formula shows, for example, that fluffy frosting on an 8 inch square cake provides a very small modicum of calories and nothing else.

Sexual Anomalies and Perversions: Physical and Psychological Development and Treatment. A Summary of the Works of the Late Professor Dr. Magnus Hirschfeld, President of the World League for Sexual Reform. Compiled as a Humble Memorial by His Pupils. A Textbook for Students, Psychologists, Criminologists, Probation Officers, Judges, and Educationists. [Authorized Translation.] Cloth. Price, \$4.95. Pp. 650. New York: Emerson Books, Inc.; London: Francis Aldor Publisher, 1944.

This is a reprint of the work published in England. Magnus Hirschfeld died some years ago. He made many contributions to the literature of sexology. The present work is a bare outline and hardly to be considered at this time either a learned or a modern contribution to the field concerned.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BRONCHIAL ASTHMA AND BRONCHIECTASIS

To the Editor:—What is the proper treatment of an asthmatic patient who has a complicating bronchiectasis? The patient, a married woman aged 28, has had asthma for years. It is at present in a severe form almost all the time. She was sent to me for x-ray treatment for the asthma because of recent favorable reports. I gave her a total of 1,000 roentgens, using high voltage therapy in divided doses. There seemed to be slight improvement. Examination with iodized oil revealed a bilateral cylindrical bronchiectasis; this included both bases. X-ray examinations of the sinuses are negative. The only other positive finding is a palpable thyroid. She has no symptoms of hyperthyroidism. I have not had a basal metabolic test made as yet. What do you think is the proper disposition of this patient? Do you think the bronchiectasis is causing the asthma or vice versa?

R. Nelson Long, M.D., Selma, Ala.

ANSWER.—Adequate treatment of a patient who has both bronchial asthma and bronchiectasis is usually impossible, although much can be done to lessen the symptoms. It is known that bronchiectasis does not cause bronchial asthma. It is believed, although this has not been proved, that bronchial asthma may in some cases lead to bronchiectasis. The two conditions coexist rather frequently, but most patients with asthma do not develop bronchiectasis and the latter can occur without asthma. Bullen, Chobot, Selby, Raia and Viswanathan have emphasized the frequency of the association of the two illnesses and have pointed out that bronchial infection and obstruction are important etiologic factors. Watson and Kibler in Arizona found that in 90 per cent of their patients with bronchiectasis allergy was also present as shown by the history, positive skin tests, associated allergic conditions and the presence of at least 10 per cent eosinophils in the nasal and bronchial secretions. Because asthmatic patients frequently move to Arizona, their figures, while accurate for their patients, are probably much higher than occur in the practice of physicians in other localities.

Treatment, in order of preference, includes (1) antiallergic measures, (2) general hygienic treatment, (3) postural drainage, (4) bronchoscopic aspirations and (5) lobectomy. Antiallergic measures should be carried out as thoroughly as possible. A complete allergic survey should be made, including scratch and intradermal skin tests; all suspected allergens should be removed, and if they cannot be avoided, e. g. house dust, injections of extracts of these substances should be given with a view to raising the patient's resistance (hyposensitization). General hygienic measures include adequate diet and rest, administration of vitamins and removal of definite foci of infection. Respiratory vaccines and avoidance of cold, damp climates may be of some service. Postural drainage should be used in all cases and over a long period of time. Bronchoscopic aspirations assist in the removal of sticky sputum and thereby help both the asthma and the bronchiectasis, but relief is only temporary.

In recent years lobectomy or even pneumonectomy has given excellent results in selected cases, according to Cole and Nalls, Head and others. Given a fairly good risk, a good chest surgeon and a unilateral bronchiectasis, surgery seems definitely indicated; all other measures can give only temporary and partial relief. Unfortunately, in this case, lobectomy is more hazardous because the condition is bilateral.

Instillations of iodized oil are essential for the diagnosis of bronchiectasis. Therapeutically, however, the procedure has been widely criticized. Results have not been too good even in the hands of the most enthusiastic workers. Opponents of the procedure have shown that untoward reactions are not infrequent: allergic reactions to iodine or poppyseed, circulatory failure, spread of infection, damage to lung tissue, spontaneous pneumothorax, massive collapse and even fatality. Most men who have tried the procedure have abandoned its use.

References:

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Watson, S. H., and Kibler, C. S.: Bronchiectasis, *THE JOURNAL*, July 30, 1938, p. 394; The Role of Allergy in Bronchiectasis, *J. Allergy* 10: 364 (May) 1939.

Cole, D. B., and Nalls, W. W.: The Treatment of Bronchiectasis, *Dis. of Chest* 5: 16 (March) 1939.

Head, Jerome: Personal communication.

TESTESTERONE PROPIONATE FOR ELDERLY MAN

To the Editor:—I have been giving testosterone propionate to a patient over 60 years old for the last year, 10 mg. intramuscularly twice weekly, mostly for the purpose of stimulation and sedation. What I should like to know is this: Is there any danger in continuing to give it to him in this amount? It is believed that the prolonged administration of gonadotropic hormones may predispose to cancer formation, but if I am correct this applies only if they are used locally but not by injection. I would appreciate it if you would verify whether I am correct or not, as these injections are rather beneficial to the patient.

George Kalichman, M.D., Santa Monica, Calif.

ANSWER.—There may be confusion introduced by speaking of "stimulation and sedation." Testosterone propionate in adequate dose is a stimulant to the seminal vesicles, prostate and penis and to libido and potentia. Doses of 10 mg. intramuscularly twice weekly would hardly be aware of it subjectively. In cases of climacteric syndrome testosterone propionate serves to reestablish autonomic nervous stability and in that sense is a sedative. The latter use is far more important in patients of the age referred to by the questioner. Such treatment may be continued for periods of months or several years if necessary to continue the relief from climacteric symptoms. It is not apt to be helpful if employed merely for the stimulation of libido and potentia, nor is such therapy considered wise by conservative physicians.

A further confusion is introduced by the questioner in referring to gonadotropic hormones, since testosterone is not gonadotropic. The term should be used to refer only to the pituitary or similar materials which stimulate the testes. Testosterone is a product of the testes. Gonadotropic hormones are not known to predispose to cancer formation. Whether testosterone does so predispose is debatable, but, since testosterone is a physiologic stimulant for the development of the prostate, ordinary clinical caution would dictate that it should be used only when there is clinical certainty that malignant disease is not present in the prostate. Furthermore, repeated prostatic examinations should be conducted throughout the course of therapy to be certain that no tumor appears. It is probable that the relationship between testosterone and tumor development in the genital tissues is not dependent on local application but is due to the physiologic effect which is obtained whether the material is taken by parenteral injection, local application or orally in the form of methyltestosterone.

SODIUM THIOSULFATE AND HYDROCHLORIC ACID SOLUTIONS FOR SCABIES

To the Editor:—Solutions containing sodium thiosulfate 20 per cent, mixed with hydrochloric acid 5 per cent, are applied to the skin at different intervals in the treatment of scabies. I understand this was used in World War I. Is this treatment feasible?

W. A. Newton, M.D., Beaumont, Texas.

ANSWER.—The treatment of scabies with a solution of sodium thiosulfate followed by weak hydrochloric acid solution is well established. According to Reuben Friedman (Scabies—Civil and Military, New York, Froben Press, 1941, p. 235) Crocker, in the 1905 edition of his textbook, reported the use of a solution of sodium hyposulfite 12 Gm., cologne water 32 cc. and rose water to make 256 cc. followed by a solution of tartaric acid 6 Gm. in 256 cc. of distilled water. Posen in 1929 used 40 per cent sodium thiosulfate (number 1) followed by 2.5 per cent hydrochloric acid (number 2). Number 1 was sponged on at night, number 2 the next morning. No complications were seen even in children. The itching ceased in three days, and the treatment ended after the sixth day.

Ravaut and Mahieu in 1934 reported the results of the use of the same strength of the thiosulfate but followed it with a somewhat stronger solution of the acid, 4 per cent, which was applied fifteen minutes after the first. The treatment was preceded by a soap and water bath, the skin was dried and the solutions were rubbed in over all the skin except the face and head. An hour later the same procedure was repeated. After the skin had dried, the patient dressed. On the second day the same four applications were made. On the third day a soap and water bath and fresh clothes were prescribed. Two days' treatment was usually enough, but a longer course can be used if necessary. They had perfect results with 52 patients, 11 of

them children, and with 15 patients who had been previously treated without success.

In 1936 Kulchar and Meininger (Sodium Thiosulfate in the Treatment of Scabies, *Arch. Dermat. & Syph.* 34:218 [Aug.] 1936) published a report on this method of treatment of 50 patients ranging in age from 7 months to 62 years. One week after the treatment was ended all were free from scabies; but 1 patient had a relapse or reinfection five weeks later, though free from symptoms for four weeks. Six patients repeated the treatment too often, but only 1 of them had a mild dermatitis, after the eighth application. This method gave better results than they obtained in a control series of 50 cases treated with the Danish ointment.

W. S. Parker ("Hypo-HCl" Treatment of Scabies, *Lancet* 1:987 [April 29] 1939) praises the method and says that it deserves wider use. Friedman used it with success.

Only A. E. Ingels (Scabies: Its Treatment with Benzoyl Benzoate as Compared with Sodium Thiosulfate plus Hydrochloric Acid, *California & West. Med.* 50:265 [April] 1939) has any criticism of the method. He used only one treatment a day, 40 per cent sodium thiosulfate rubbed in and allowed to dry, then 4 per cent hydrochloric acid rubbed in and allowed to dry. The next day this was repeated. The third day a bath was followed by clean clothes. The patients were warned not to repeat the treatment without permission of the doctor. Of 30 patients 4 were not cured and 5 showed mild dermatitis venenata. Many "complained of aggravated or distressing itchy sensations, which betrayed the peculiar tenacity characteristic of a sulfur dermatitis." Repetition of the course aggravated these symptoms, and 2 patients had severe dermatitis. He did not use the method in cases complicated by secondary infections or other skin manifestations. These caused more trouble than just described. He used benzoyl benzoate in a comparable series of cases and had less trouble and more constant cures from it.

Whatever the method, the success or lack of it depends largely on the intelligence of the patient and the care of the physician in describing the minutiae of the treatment. Carelessness in the clean-up at the end of the course is the chief cause of reinfection. Overuse of the remedy because of itching at the end of the ordinary course is the chief cause of dermatitis. The patient ascribes the itching to the activity of the mite instead of to the irritation of the remedy and adds to it by application of more of the remedy.

RENAL COMPLICATIONS OF NEWER SULFONAMIDES

To the Editor:—Is sulfadiazine more apt to produce kidney complications than sulfathiazole and, if so, how and why? Has any evidence accumulated in the literature that sulfamerazine is more dangerous in the same respect than sulfadiazine or sulfathiazole? Isn't it pretty generally recognized that the urine should always be alkalinized when any of these three drugs is being administered in therapeutic doses?

Preston S. Herring, M.D., Vicksburg, Miss.

ANSWER.—Precise statistical data comparing the incidence of renal complications in a large series of patients treated with sulfadiazine and sulfathiazole are not available. Yet in one large institution therapy with sulfathiazole was associated with kidney complications more frequently than with sulfadiazine. Likewise the incidence of renal dysfunction was greater with sulfathiazole than with sulfamerazine. Sulfamerazine did not appear to cause any more renal disturbances than sulfadiazine. There are at least three mechanisms whereby the kidneys are affected by the foregoing compounds. First, the drugs or their conjugated products may precipitate out of the urine, particularly in the tubules, and result in a suppression of the free flow of urine. This produces an oliguria and a retention of metabolites usually excreted by the kidney. Second, the compounds may exert a direct toxic effect on the renal parenchyma, provoking areas of focal necrosis with a secondary cellular reaction. Third, there is increasing evidence that the kidney may be the site of a hypersensitive type of reaction to the compounds or, as Rich terms it, an anaphylactic type of hypersensitivity. This type of vascular lesion does occur in other tissues of the body and is more readily produced by sulfathiazole than by sulfadiazine or sulfamerazine. It may be that this third mechanism accounts for the more frequent occurrence of renal lesions following therapy with sulfathiazole.

It is now generally recognized that attempts should be made to have patients excrete an alkaline urine when any one of the three drugs is utilized in therapeutic doses. It should be emphasized that the urine should be alkaline throughout the twenty-four hour period, which may require divided doses of a large amount of alkali such as sodium bicarbonate. In addition to alkalinization of the urine the fluid intake should be of that magnitude which will insure in an adult the output of a liter or more of urine in twenty-four hours.

HAY FEVER FROM TREE POLLENS

To the Editor:—Can you tell me of any desert or mountain resorts that are free of oak, hackberry, elm, box elder, mimosa, acacia and ash trees? My wife has hay fever badly from pollen of these trees during April and May and since desensitization treatments have not helped her much so far I should like to send her away.

M.D., Virginia

ANSWER.—While the overlapping natural ranges of the eight trees mentioned with their numerous related genera and species cover all of the United States and Canada, it is possible that there are a number of places where the victim could be comfortable during April and May. The greatest difficulty with the desert resorts is the possible presence of elms and box elders, particularly the latter, which are widely used for shade in dry areas. The difficulty in the mountain resorts is the possible presence of ash and oak. Much of the Southwest, from west Texas to southern California, must be avoided because of acacia, mimosa or the closely related mesquite. There are all too few year round pollen records in the mountain and desert areas. Miami, Fla., might be satisfactory as far as air borne pollens of the types mentioned are concerned. While hackberry and oak are listed for the district, the oaks finish their pollination before April, and hackberry pollen was not encountered during the year tests were made. Key West would be even better than Miami. The only possible difficulty in southern Florida would be the presence of royal poinciana, which is rather closely related to mimosa and acacia. However, this type of pollen is not wind borne and was not detected in the air in the pollen studies made at Miami.

Reference:

Nichol, E. S., and Durham, O. C.: A Pollen Survey of Miami, Florida. *South. M. J.* 24: 947 (Nov.) 1931.

COUNTING, STAINING AND PRESERVATION OF SPERMATOZOA

To the Editor:—I should like to know the method used to count the number of spermatozoa per cubic centimeter of semen. Can the spermatozoa be stained? How are they preserved? What is the best temperature to use in order to keep them alive over the necessary period of time?

Joseph T. Nardo, M.D., Somerville, Tenn.

ANSWER.—The technic used is the same as for making a leukocyte count. After the seminal fluid has liquefied, which usually occurs within ten minutes, it is measured in cubic centimeters. A sample is drawn up to the 0.5 mark in the white pipet. A solution containing 1 per cent solution of formaldehyde U. S. P. diluted 1:10 and 5 per cent sodium bicarbonate in distilled water is then drawn up to the 11 mark. The dilution is 1:20. A drop of the diluted seminal fluid is allowed to flow under the cover glass of the counting chamber. After allowing a few minutes for settling, one counts all the spermatozoa in the four large squares (each one 1 mm. square and 1 mm. deep), using the high dry objective. The total number of spermatozoa counted is then multiplied by 20 (for dilution), divided by 4, multiplied by 10 (for cubic millimeters, since the depth of the cells is 0.1 mm.) and by 1,000 for cubic centimeters. The result obtained is the number of spermatozoa in 1 cc. To obtain the total number of spermatozoa ejaculated, the number in 1 cc. of seminal fluid is multiplied by the volume of seminal fluid.

Many different methods have been developed to stain spermatozoa. Two methods can be found in the following references:

Greenberg, B. E.; Berman, S.; Gargill, S. L., and Griffin, R. C.: A New Method for Staining Spermatozoa, *J. Clin. Endocrinol* 2:179 (March) 1943.

Cuyler, W. K., and Baptist, Margaret: A Spermatozoal Stain for Clinical Studies, *ibid.* 2: 571 (Sept.) 1942.

The semen is best preserved in a refrigerator under ordinary ice box temperature. The addition of a small crystal of thymol will keep it in a suitable condition for a week or so.

SULFONAMIDES IN PRODROMAL STAGE OF MEASLES

To the Editor:—Is it advisable to use sulfonamides in the catarrhal stage of measles before the appearance of Koplik spots or the rash? Will the administration of sulfonamides given in such a case delay the appearance of the rash?

M.D., New York

ANSWER.—There is no objection to using sulfonamides in the catarrhal stage of measles before the appearance of the rash. Some physicians believe that complications are diminished by such a procedure. In one large experience a delay in the development of the rash because of the treatment described has not been observed.

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EVOLUTION IN MEDICINE

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CHICAGO

As we view the accomplishments of the medical departments of the Army and Navy thus far in the war, we are moved with pride in their achievements. To those of us whom time has robbed of the opportunity of again participating in uniform, this creditable performance is a source of deep satisfaction and no little envy. The medical officers today have the advantage of almost thirty years of better professional education, better technical knowledge and methods and, with these, better mechanical appliances and transportation.

It may be of interest to note at this time the course of development of medicine which has led to this great advance in treatment and cure of wounds and disease to see how these observations may apply to the future progress of medical education and practice.

The history of medicine of any period is the history of contemporary economic, social and political conditions. Medicine prospers in discovery and improvement along with other branches of science, and in turn these discoveries reflect similar progress or regression in the social and political life of the times. The social and economic problems encountered in the practice of medicine are not peculiar to medicine and cannot be solved by medicine alone. Bad housing and bad nutrition contribute directly to bad health, but they arise not through any fault of medicine but from bad economic and social situations. And so their cure is to be sought not through a radical change in medical procedure but rather in the remedying of social ills, in which effort medicine will gladly participate. The cure of many a sociologic-medical problem is a grocery order rather than a prescription.

EVOLUTION IN MEDICINE

The advances in medicine as in all science have been achieved as the result of slow accumulation of knowledge. What appears to be a sudden startling discovery in medicine is usually rather the culmination of long patient work in several sometimes distantly related fields. Some small new fact perhaps brings the many elements into focus, and a valuable new method emerges. Vesalius is credited with making the first clinical diagnosis of aortic aneurysm. His enviable accomplishment consisted, however, in recognizing the similarity of the pulsation beneath the shoulder blade of the nobleman

Welserus to the pulsation in aneurysms of peripheral vessels, which had been recognized and described by Hippocrates nineteen centuries before. In recent times the discovery of sulfanilamide was conditioned by preceding and apparently unrelated studies on the physiology and growth requirements of bacteria; Fleming's observations on the limitation of growth of bacteria by contaminating mold depended on experiments on the nutrition of bacteria and the effects of diffusible substances unfavorable to their growth; out of these concepts came penicillin.

Medical education began in Europe in the monasteries, then was fostered in the universities; its growth was hindered by superstition and obstructed by laws based on tradition; its tempo of growth became more and more rapid until the present time. The twentieth century has been marked in this country by reforms in the method and content of medical education and the close affiliation of medicine with ancillary science. With this marvelous advance has come a corresponding reduction in mortality from disease and a notable increase in life expectancy. The improvements in medical education and increase in medical knowledge in the past forty years are directly reflected in the increased efficiency of medical care of our military sick and wounded. The whole story of medicine in this country is that of an orderly evolution unrestricted by regimentation or federal interference.

We are now faced with certain proposals which would alter the conditions of medical practice as a part of a larger plan ultimately to revise our entire social and governmental structure. While it is intended here to refer only to the medical aspects of this proposal, it must be recognized that medicine which deals with the health of the people touches closely on their economic and social standards.

History is full of examples of the close interrelation of medicine and social, economic and political life of peoples. Many of our present day problems are merely repetitions in modern setting of identical situations of ancient civilizations. Haskell has reviewed the growth and course of Roman civilization from the founding of Rome, through the Republic, to the fall of the Empire, the establishment of a totalitarian state and finally total disintegration. He has pointed out the remarkable similarity of problems of that period to our own.

It is significant that those who then advocated measures of relief were motivated in part by desire to improve things and in part to satisfy what they conceived to be their personal advantage. Then and now measures of cure of medical as well as of economic

and political illness need to be scrutinized not only as to motive and proposed mechanism but also as to their ultimate affect on medicine or on the state of the future. The Roman Catiline, who in general has been given a bad name, himself espoused the cause of the oppressed masses. He had suffered irritating defeats and injuries; he explained his course by saying "I have undertaken, as is my wont, the public cause of the distressed." But his program had no regard for results beyond the immediate gain or loss of his campaign for consul. When asked as to this, he said "If a fire is lighted against me, I shall put it out not by water but by pulling down the roof of things."

Among the social reformers and political propagandists who would force wide governmental and social changes by an oblique attack on medicine there are too many Catilines who would pull down the roof of medicine in order to carry out other plans looking to a totalitarian state. We shall hope not to be obliged to say, as did Tacitus concerning Roman intellectual life, that "genius died by the same blow that ended public liberty."

We are urged to consider the alleged advantages of socialized medicine under bureaucratic control as provided in several countries elsewhere in the world. But we are concerned with the system of medical care in the United States and not with that of other countries. We must not try to tell them what to do or how to manage their medical economy nor, contrariwise, can we assume that a medical plan which fits their political and economic status would be good for us. Economic, political and social ideals determine the course of all activities in nations just as they do in villages and neighborhoods. These ideals differ, and a medical program will take the pattern of the thought and desires of a people.

Individualization is necessary in dealing with the diverse economic and social conditions in the several portions of this country. Measures in recognition of this evident fact will go far to solve social and medical injustices which unavoidably result from economic privation and inequality. Here in America the central thought of our life and development has been freedom of action—free enterprise. There are now those who would attempt to impose a regulation of medicine as the first step toward a totalitarian system in a nation whose ideology revolts at such a change. They would make the change largely on the ground that there have been instances in our present system in which selfishness has prevented the successful operation of free enterprise and that there have been injustices in the operation of our social system. That there have been such injustices is true: no plan short of a Utopia is perfect, and there is great probability that the rules of Utopia would need revision with changing times.

Medicine along with our entire social thinking is undergoing change for the better, but this orderly though sometimes lagging change of evolution is far different from the change promoted by revolution, with the destruction of standards built up by decades of laborious and idealistic effort.

Certain lay persons and a few doctors blithely recommend socialized medicine, apparently without full knowledge of the inevitable results entailed in its operation.

When it fails they will move on to other fields, along with other irresponsible advocates of unsound economic programs, leaving the wreckage behind. Some of them are well meaning and may be said to be contemporaneously sincere; others are motivated by more sinister aims which threaten the very roots of our republic.

SOCIAL SERVICE

There is a group of sincere social workers who are rightly impressed with the social and medical difficulties of the poor and ignorant and are anxious to assist in their relief. They properly take pride in the social gains already achieved among many groups of unfortunates, but in their desire to extend rapidly this beneficent action they naively seize on socialized medicine as a vehicle. They fail to see that by bringing medicine down to an average level they would sweep away many of the standards they themselves have already set up. If there is one activity which requires as much as does medicine the utmost individualization, it is that of the social worker. Her work is based on the sensible solution of each peculiar problem and can never be brought successfully into the regimentation of socialized medicine.

There are many groups of sufferers who as yet have not been reached, but the destruction of present standards and the lowering of the average of the entire group to the level of years ago is a poor way to approach an already difficult problem. It is this destruction of present standards both medical and social that is one of the most vicious features of socialized medicine. Social service, which has accomplished much in the alleviation of distress, should have a care to distinguish between real and false friends.

There are still others who masquerade under the cloak of social service whose purpose is not to improve the lot of the poor but rather to use social service and medicine as a stalking horse to attack the present economic and social régime and set up a bureaucracy entirely foreign to the ideology of America. In their arguments they condemn the medical profession as selfish and obstructive and with superficial sophistries urge a system that they themselves know will not accomplish the ends they outwardly propose.

The falsity of the charge that medicine has done nothing to provide better medical service to the public is evident on reference to the record. This record is enviable but, by reason of its cautious development, lacks dramatic appeal. By utilizing the scientific method this progress has been sound and will endure. To plunge into a revolutionary plan with a specious appeal to the uniformed would be as disastrous to the general welfare as was planned food scarcity and the slaughter of little pigs.

Voluntary insurance against the costs of hospitalization was first broached seriously in the United States some twenty years ago. Today by gradual evolution of the so-called Blue Cross and similar hospitalization plans more than 15,000,000 Americans are insured against this hazard. However, even the Blue Cross hospitalization plan, as in effect today, is far different from the hospitalization plan first proposed. In the course of development of such plans it has been found necessary to protect the hospitals against the abuse of those who

would exploit the hospital as a place for a vacation. It has also been necessary to protect certain highly specialized medical services against exploitation by the hospital and by the patient. Likewise it has been necessary to protect the patient against exploitation by the hospital or by some of the specialistic technical medical services. In the gradual evolution of hospitalization insurance these safeguards have been developed.

More than twenty years ago there were available in the United States individual insurance policies which protected the policyholder against the costs of sickness, surgical operations and hospitalization. The rates for such insurance were prohibitive to all except a few. With the development, however, of more experience, permitting the accumulation of actuarial data, the large insurance companies of the United States have found it possible to develop group insurance against the costs of hospitalization, disability due to illness, surgical and obstetric fees and medical care at rates so reasonable that today more than 18,000 American industries are covered with a total of 20,000,000 policyholders. Within five years one insurance company has written such insurance for 2,700 industrial groups covering 1,650,000 persons; another company has covered 1,500,000 in 2,300 industries, and the numbers are growing daily.

Why could not this have been done before? In addition to the necessary evolution of public knowledge and opinion and of actuarial data, medicine itself had to progress in effectiveness so that an insurance policy might be financially possible to the man of limited means and at the same time be actuarially sound. Hospitals themselves had to become available. In 1900 there were 1,000 hospitals in this country; today there are over 7,000. Methods of medical care had to be improved so that hospital days of illness could be reduced to a workable number.

In 1912 the average hospital stay for appendicitis was eighteen days; now it is eleven days. The average course of lobar pneumonia has been reduced from weeks to days. The case fatality of epidemic meningitis in 1910 was 80 per cent; in 1935 30 per cent; today it is 5 per cent. These are only examples of the general improvement in the quality and effectiveness of medical care, which in turn makes possible readjustment of insurance rates to the point at which they are within the reach of the average worker on a sound actuarial basis.

Finally there are the plans which gradually have been developed by state and county medical societies, including today several plans which now cover tens of thousands of policyholders. All of these plans are recognized as still evolutionary and subject to improvement. It is the traditional American system to develop safe technics by cooperative experimental methods by the people who serve and by those who are served. By the exercise of private initiative with recognition of the right of the individual state and of the federal government to regulate so as to insure actuarial safety, we shall be able to develop in the United States plans so that all workers and their families may be protected by a technic that is still sufficiently American to grant freedom of choice to the worker and to the employer

and eliminate any excuse for the intervention of governmental bureaucracy.

The care of the indigent has for many decades been willingly accepted by physicians, and suitable institutions have been created usually under state and local community direction supported by the state and community by taxation and by private funds. The indigent share with others the improvements and advances in medical care, but it is noted that the plans for socialized medicine give scant attention to this group, from whom but little political advantage can be gained.

RURAL AND DEPRESSED AREAS

One of the most urgent problems which American medicine must meet and help to solve is that of the rural area, in which for one reason or another economic and social conditions are bad and medical care is sadly deficient. If doctors could be induced even by subsidies to locate in such places, the quality of care would still be substandard, for the doctor cannot do his best without tools. The solution lies in the planned establishment of hospital centers under county or local control which will give the doctor a place in which he can work satisfactorily and from which medical and hygienic knowledge can diffuse into surrounding communities. These deficient areas are scattered all over this country, and their salvation is a state and economic problem. The doctor will gladly join, but he cannot carry both the economic and the medical burdens alone. The rectification of the social and medical deficiencies in these areas will remove the most important claim to consideration of the advocates of socialized medicine.

The medical as well as the social and economic problem of the immediate and more distant future will be solved by a continuation of the evolution and orderly growth of medicine and social activities.

A definite program looking to the elimination of gross deficiencies in rural and other depressed areas, and the continued advance in medical education and consciousness of social responsibility with maintaining of standards, will go far toward attaining this desirable goal.

The American way of life is to us the most desirable. We have a degree of individual freedom (in spite of minor inconveniences of rationing and taxes) found nowhere else in the world.

Our very national life has been threatened first from the Atlantic and then from the Pacific. We are fortunate in having strong allies whose immediate aims are ours. But our real aim in this war is to maintain our American way of life. This is the reason our soldiers are willing to serve and suffer. And so it is the duty of those of us at home that we preserve for those who fight for us their ideals of freedom and see to it that our doctors in the service return to a free medical world unencumbered by the deadening influence of state controlled medicine and politically dominated practice.

Their military service will be easier and more effective if they are assured that during this war we are preparing for an enduring economic peace with maintenance of educational and medical standards and the preservation of liberty and free enterprise.

122 South Michigan Avenue.

SEPTICEMIA AND PURPURA WITH ADRENAL HEMORRHAGE IN THE ADULT

(WATERHOUSE-FRIDERICHSEN SYNDROME)

A DISCUSSION OF THE ROLE PLAYED BY THE ADRENAL
GLAND IN THE PRODUCTION OF THE SYNDROME;
REPORT OF TWO ADULT CASES.

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The syndrome of bleeding into the skin and other organs including the adrenals in the presence of a severe septicemia is becoming more frequently recognized by clinicians both here and abroad. At the present time almost 150 cases have been reported, the vast majority being in infants and young children. A careful search of the literature has revealed only 19 instances in adults. A recent epidemic of meningococcal meningitis has given us the opportunity to observe 2 typical instances of this unusual syndrome in adults. With prompt recognition plus intensive specific therapy, more victims of this almost uniformly fatal malady might be saved.

At the present time there remains a great deal of confusion concerning the etiology, the pathogenesis, the role of the hemorrhagic adrenal destruction and the status of the thymolymphatic system in the production of this syndrome. As more cases are being studied and with more information concerning capillary physiology, some of the unknown problems are nearing solution.

Fulminating purpura with bilateral adrenal hemorrhage was described as early as 1894 by Voelcker.¹ In 1898 Garrod and Drysdale,² Battin³ and Andrewes⁴ published case reports, which was followed in 1900 by 1 from Talbot.⁵ Blaher and Bailey⁶ in 1901 reported 4 cases of hemorrhage into the skin and adrenals and suggested that the etiology was a fulminating hemorrhagic smallpox. The same year Little⁷ presented 4 cases of his own, with a review of 12 others which he stated were "hitherto unclassified." Waterhouse⁸ in 1911 described the syndrome with an accurate picture of the symptomatology and pathology but contributed nothing to the etiology. Most authors credit MacLagan and Cooke⁹ in 1916 with being the first to find a specific bacterial agent when they recovered the meningococci in 2 fulminating cases of cerebrospinal fever. It

should be noted that Andrewes¹⁰ in 1906 reported this organism in what is perhaps the first bona fide adult case. Friderichsen¹¹ in 1918 published reports of 2 cases of his own and made an extensive review of 28 others. Since then the syndrome has gradually assumed its present title. Aegerter¹² presented a study of the symptomatology, pathology and etiology in 1936. In his review of 55 collected cases plus 2 of his own he found only 6 in adults, with 70 per cent under the age of 2 years. Since then all reported cases have been in children except adult case reports by Foucar,¹³ Simpson,¹⁴ Craster and Simon,¹⁵ Kwedar,¹⁶ Carey,¹⁷ Leone,¹⁸ Drummond and Tooke,¹⁹ Grace, Harrison and Davie²⁰ and Sharkey.²¹

ETIOLOGY

Investigations to determine the responsible bacterial agent were not as common in the early cases as in later years. In Friderichsen's collection of 30 cases blood culture was reported in only 12 instances, 7 of which were sterile and the remainder included a variety of organisms. Waterhouse's case yielded a sterile post-mortem blood and spinal fluid culture, and it was his opinion that cultures were sterile in most cases. Previous to the work of Andrewes and of MacLagan and Cooke in demonstrating the meningococci, bacterial agents cultured from the blood, skin and adrenals included the streptococcus, staphylococcus, pneumococcus, colon bacillus, *B. pyocyaneus* and the Friedländer bacillus. Blaher and Bailey suggested that the etiology was a fulminating hemorrhagic smallpox; Dudgeon²² found a *Streptococcus aureus* in 1 case and a pneumococcus in another. Little demonstrated streptococci in sections of the skin.

After some years of investigation by modern bacterial methods it seems definitely established that the most frequent invading organism is the meningococcus. In a review of this syndrome Sacks²³ states that, since MacLagan and Cooke's report, of 21 cases in which definite etiologic data are included, 60 per cent, or 12 cases, were due to the meningococcus while the others were sterile or showed growths of *Streptococcus haemolyticus*. Sacks also notes that Bamatter²⁴ in 1934 found that only four bacteriologic examinations had been done ante mortem. It is the growing opinion

10. Andrewes, F. W.: A Case of Acute Meningococcal Septicemia, *Lancet* 1: 1172, 1906.

11. Friderichsen, C.: Nebennierenapoplexie bei kleinen Kindern, *Jahrb. f. Kinderh.* 87: 109, 1918.

12. Aegerter, E. E.: The Waterhouse-Friderichsen Syndrome: A Review of the Literature and a Report of 2 Cases, *J. A. M. A.* 106: 1715 (May 16) 1936.

13. Foucar, F. H.: Acute Fulminating Meningococcus Infection with Bilateral Capillary Hemorrhage of the Adrenals as the Most Striking Gross Pathologic Lesion: A Case Report, *Ann. Int. Med.* 9: 1736, 1936.

14. Simpson, C. K.: Pathology of the Adrenal Gland in Relation to Sudden Death, *Lancet* 1: 851, 1937.

15. Craster, C. V., and Simon, H.: Meningococcal Meningitis and Acute Meningococcemia: A Clinical Study, *J. A. M. A.* 110: 1069 (April 2) 1938.

16. Kwedar, A. T.: The Waterhouse-Friderichsen Syndrome: Report of a Case in an Adult, *Ann. Int. Med.* 16: 787, 1942.

17. Carey, T. N.: Adrenal Hemorrhage with Purpura and Septicemia (Waterhouse-Friderichsen Syndrome) with Recovery: Case Report, *Ann. Int. Med.* 13: 1740, 1940.

18. Leone, G. E.: Spontaneous Hemorrhage into the Suprarenals (Suprarenal Apoplexy), *Ann. Int. Med.* 14: 2137, 1941.

19. Drummond, W. F., and Tooke, T. B., Jr.: The Waterhouse-Friderichsen Syndrome: A Review of the Literature and a Report of Two Cases, *New Orleans M. & S. J.* 94: 11, 1941.

20. Grace, W., and Davie, T. B.: Suprarenal Hemorrhage in "Waterhouse-Friderichsen Syndrome," *Lancet* 2: 102, 1940.

21. Sharkey, J.: Hemorrhage into the Adrenal Glands with Low Blood Pressure, *Lancet* 2: 360, 1941.

22. Dudgeon, L. S.: The Etiology, Pathology and Diagnosis of Adrenal Hemorrhage, *Am. J. M. Sc.* 127: 134, 1904.

23. Sacks, M. S.: Fulminating Septicemia Associated with Purpura and Bilateral Adrenal Hemorrhage (Waterhouse-Friderichsen Syndrome): Report of 2 Cases with Review of the Literature, *Ann. Int. Med.* 10: 1103, 1937.

24. Bamatter, F.: Fulminate Meningokokkensepsis: Zur Aetiologie des Syndroms von Waterhouse-Friderichsen, *Jahrb. f. Kinderh.* 142: 129, 1934.

Suggestions and help were given by Dr. Lewis C. Pusch, pathologist, York (Pa.) Hospital.

1. Voelcker, A. F.: Pathological Report, Middlesex Hosp. Rep., 1894-1895.

2. Garrod, A. E., and Drysdale, J. H.: Hemorrhage into Both Suprarenal Capsules, *Tr. Path. Soc. London* 49: 257, 1897-1898.

3. Battin, F. E.: Hemorrhage into the Suprarenal Capsule, *Tr. Path. Soc. London* 49: 259, 1898.

4. Andrewes, F. W.: Hemorrhage into the Suprarenal Capsule, *Tr. Path. Soc. London* 49: 259, 1898; A Case of Acute Meningococcal Septicemia.¹⁰

5. Talbot, E.: Cases of Hemorrhage into the Suprarenal Capsules, *St. Barth. Hosp. Rep.* 36: 207, 1901.

6. Blaher, P. S., and Bailey, B. E. G.: On Some Cases of Hemorrhage into Skin and Suprarenal Capsules, *Brit. M. J.* 1: 75, 1901.

7. Little, E. G.: Cases of Purpura, Ending Fatally, Associated with Hemorrhage into the Suprarenal Capsules, *Brit. J. Dermat.* 13: 445, 1901.

8. Waterhouse, R.: A Case of Suprarenal Apoplexy, *Lancet* 1: 576, 1911.

9. MacLagan, P. W., and Cooke, W. E.: The Fulminating Type of Cerebrospinal Fever: Pathology and Cause of Death, *Lancet* 2: 1054, 1916.

of a number of students of this condition that, with an increased number of case studies, *Neisseria meningitidis* will be indicted as the sole etiologic agent. In our review of the 21 adult cases including 2 of our own the meningococcus has been cultured or reasonably well identified on sections in 16 reports. In the remainder no organism was seen in sections, and cultures of blood and spinal fluid when done had revealed no growth.

At the present time, however, the meningococcus is not universally accepted as the sole etiologic factor. Recently Lindsay and his associates²⁵ reported 7 cases in children in which the heart's blood culture showed 4 to be positive to *Neisseria meningitidis*, 2 to *Haemophilus influenzae* and 1 to *Neisseria flava* II. In case 2 by Sacks the postmortem culture revealed a pneumococcus type I. The occasional finding of the pneumococcus is of great interest because of its characteristic like that of the meningococcus in producing purpuric skin lesions as shown by Mair²⁶ and by Julianelle and Reimann.²⁷

PATHOGENESIS

The concept that the hemorrhagic destructive lesion of the adrenals is the cause of the dramatic death of the victim has been accepted by most observers for a number of years. That this theory is not tenable is attested by animal experimentation, reports of recoveries and of autopsies on cases in which there was no adrenal involvement or a unilateral cortical lesion.

Adrenalectomized dogs lose appetite and become weak and listless, with vomiting, diarrhea, pronounced depression, feeble pulse and low blood pressure and metabolic rate. These symptoms are faithfully followed by patients with the Waterhouse-Friderichsen syndrome with one important exception, and that is the time that it takes for these features to appear. The onset of the symptoms to the time of death of the patient is usually measured in hours and seldom runs over two days at the most. In adrenalectomized dogs in the average, survival time in 74 subjects was found by Rogoff and Stewart²⁸ to be seven days. The onset of the changes in the experimental animal is slow and insidious, the subject becoming apathetic and sluggish, weak in the hind legs, then lying prostrate, refusing food and often vomiting. Muscular twitchings and frank convulsions develop, respirations becoming slow and labored and eventually ceasing. In man these identical changes are rapid but complicated with profound overwhelming infection that has produced sepsis and hemorrhagic phenomena.

In the reported cases of recovery in the Waterhouse-Friderichsen syndrome the clinical features are identical with those that are fatal. It is difficult to visualize even mild bilateral hemorrhagic lesions of the cortex which could produce such profound disturbances of the individual and still be able to recover complete function. While it is known that one eleventh to one fourth of one adrenal cortex is sufficient to maintain life in the experimental animal, it is not reasonable to suppose that rapid destruction of the major portion of the cortex will produce the syndrome rapidly, because that is not the case in complete adrenalectomy.

Regeneration of the glands can likewise be eliminated. The MacKays and Addis²⁹ have shown that hyperplasia of the cortex of one gland does occur after excision of the other, but that it is an inactive process taking nearly three months to develop and requiring most encouraging conditions which are not present when disease is present. As far as rapid destruction of the glands is concerned, regeneration is far too slow and uncertain to play any part in staving off insufficiency. Any process-resembling regeneration is seen rarely in company with disease of the organ itself.

The sequence of events in the production of the Waterhouse-Friderichsen syndrome is undoubtedly initiated by a bacterial invasion of the blood stream. That most cases of meningococcal meningitis show a stage of dispersion in the blood stream after a period of local infection in the upper respiratory tract is generally accepted. The cause of the wide hemorrhagic phenomena of the skin, adrenals and many other tissues has been thought to be the direct action of the bacteria or their toxins on the walls of the capillaries.

Removal of the adrenal medulla will produce no definite change in the physiology of the animal, and it has been noted by many investigators that the surgical removal of both adrenal cortices will not produce the symptoms of insufficiency for at least several days. Because of the great rapidity with which symptoms uniformly appear in an apparently healthy individual, it is difficult to ascribe their origin to adrenal insufficiency. However important the adrenal glands are to the economy of the individual, they are just one of the tissues of the victim that manifest this capillary weakness. If the patient would not succumb in such a rapid manner, the loss of the adrenal cortex hormone would present a very serious complication in a few days.

It is our opinion from observation of our 2 cases and the study of a large number of reported ones that death occurs from an overwhelming septicemia with a superinduced profound state of shock. The reason for massive adrenal hemorrhage exciting the interest of most observers is that it has long been known that loss of the adrenal cortical hormone produces fatal disorders of systemic functions that are identical in most features with those of surgical or traumatic shock. However, the duration of the illness is too short for the loss of this hormone to be noted. Aegerter states that, if there is a pronounced fall in the blood sodium concentration, one may assume that death is at least partly due to the collapse following adrenal destruction. With an illness of such short duration, the blood serum sodium cannot fall appreciably. Cutler, Power and Wilder³⁰ point out that in Addison's disease the blood sodium may be within normal limits and sodium balance studies are necessary to determine the abnormality of sodium metabolism. It might also be added that many observers have noted that, in the development of shock of any cause, plasma loses sodium.

The clinical evidence for the concept that adrenal hemorrhage plays little or no part in the rapid death of the patient is furnished by Williams,³¹ who has

25. Lindsay, J. W.; Rice, E. C.; Selinger, M. A., and Robins, L.: The Waterhouse-Friderichsen Syndrome, *Am. J. M. Sc.* 201: 263, 1941.
26. Mair, W.: The Purpura Producing Substance in Pneumococcus and the Heritable Susceptibility of Mice, *J. Path. & Bact.* 31: 215, 1928.
27. Julianelle, L. A., and Reimann, H. A.: The Production of Purpura by Derivatives of Pneumococcus, *J. Exper. Med.* 45: 609, 1927.
28. Rogoff, J. M., and Stewart, G. N.: Studies on Adrenal Insufficiency in Dogs, *Am. J. Physiol.* 75: 683, 1926; 84: 649, 1928.

29. MacKay, E. M.; MacKay, L. L., and Addis, T.: Degree of Compensatory Renal Hypertrophy Following Unilateral Nephrectomy, *J. Exper. Med.* 56: 255, 1932.

30. Cutler, H. H.; Power, M. H., and Wilder, R. M.: Concentration of Sodium, Chloride, and Potassium in the Blood Plasma and Urine of Patients with Addison's Disease: Their Diagnostic Significance, *Proc. Staff Meet., Mayo Clin.* 13: 244, 1938.

31. Williams, H.: Meningococcal Infections in Infancy and Childhood: II. Meningococcal Septicemia, with Special Reference to Adrenal Apoplexy or the Waterhouse-Friderichsen Syndrome, *M. J. Australia* 2: 557, 1942.

observed 17 children with fulminating meningococcal septicemia who came to autopsy. The clinical features of all the cases were much the same, but only 9 of them presented bilateral adrenal hemorrhage. Williams states that it was impossible to predict which of the cases would present adrenal involvement and which would not. In a detailed analysis of the two groups it is apparent that the two groups cannot be separated on clinical grounds. The classic clinical features were identical, as were the necropsy findings, with the exception of the adrenal hemorrhage in 9 of the 17 cases. It is Williams's opinion that adrenal hemorrhage is but an incident in an explosive disease process that overwhelms all bodily resistance.

SYMPTOMATOLOGY

The clinical picture is almost the same in adults as in the more frequently described infants. The patient usually has no prodromal complaints except what seems to be a mild upper respiratory infection. After a few days of mild malaise the serious symptoms appear and progress with alarming rapidity, so that the duration of the disease is measured in hours and not days. Chills, fever, sweating and manifest weakness appear together as the first complaints. General aching with abdominal pain or cramps is quickly followed by profuse vomiting of the stomach contents followed by bile. Cyanosis is usually extreme and appears early and is frequently the sign that attracts the attention of the family to the seriousness of the situation. In a few hours the fever is usually over 102 F., with a rapid, weak pulse and evident hypotension. Petechiae appear over wide areas and rapidly coalesce into large ecchymotic spots with amazing rapidity. The cyanosis plus the purpura usually alarms the family to the degree of obtaining medical advice, because in most case reports the physician seems to be called early in the course of the disease. There is no abnormality of the central nervous system on examination except a toxic delirium, which changes rapidly with convulsions to a deep coma and death.

Laboratory examinations are frequently meager and inconclusive because of the short duration of the disease. There is almost always a rather accentuated leukocytosis, with some shift to the left. Owing to the shocked condition of the patient it is frequently difficult to express a drop of blood from the skin for examination. Smear and culture of the purpuric areas as suggested by W. W. King³² and by McLean and Caffey³³ often prove of value in isolating the offending organisms, most frequently the *meningococcus*. The same organism is found in blood cultures in at least 60 per cent of the cases.

Boone and Hall³⁴ and Kwedar have reported finding the *meningococcus* in blood smears stained with Wright's stain. Chemical examinations of the blood are those generally found in shock.

Spinal fluid examinations are usually of no value in diagnosis but generally become abnormal in the last hours of the illness if death does not intervene too quickly.

PATHOLOGY

The pattern of pathologic features is much the same in all cases of infants or adults. The outstanding feature is bilateral adrenal hemorrhage, reported in more than 95 per cent of the cases. These findings vary from microscopic pinpoint hemorrhages to massive bleeding, converting the adrenal into a mass of blood. When severe there is complete destruction of the organ with scattered remnants of the gland remaining. When the bleeding is mild the medulla is usually more involved than the cortex. In 3 of the 55 cases reviewed by Aegerter the bleeding was unilateral and on the right side. The bleeding may extend into the perirenal fascia, and in 1 case noted by Aegerter the capsule had been ruptured, producing a hemorrhagic peritonitis. The capsule is usually tense and, when opened, resembles a blood cyst grossly. The microscopic picture usually shows a complete replacement of medullary tissue by hemorrhage and only remnants of cortical tissue remaining around the capsule. Bacterial stains frequently reveal the *meningococcus* in the tissues.

Sections of the purpuric skin lesions show engorged blood vessels in the corium, with occasional small areas of extravasation of blood. Postmortem findings in other organs are not constant; hemorrhage into the serosal cavities and intestinal tract are sometimes found. Pulmonary engorgement and injection of the vessels of the brain are frequently found. Other organs are not remarkable except for the prominence of the thymolymphatic system in the children who have succumbed to this disease. Enlargement of the thymus, lymph nodes, Peyer's patches and spleen has led to a discussion whether there is some relation between this condition and the rapid death of the patient. While some observers believe that the prominence of the thymolymphatic system is too frequent to be coincidental, no evidence of its presence is found in adults, who succumb just as rapidly as children. The definite relation of these findings remains unknown at the present.

REPORT OF CASES

CASE 1.—A white man aged 34, of normal health except for a mild upper respiratory infection of three days' duration, on the third day (Dec. 26, 1942) when returning from work complained of weakness, fever and general malaise. He was seen by his physician and found to have a temperature of 104 F. At 5 o'clock the following morning he became unconscious, and the skin became purple and mottled in appearance. During the night he vomited and had severe pains in the back and epigastrium. He was admitted to the York Hospital at 7 a. m. and died at 9:30 a. m. the same day. Physical examination showed that he was well developed and had cyanosis, dyspnea, a restless delirium and a skin that was covered with large areas of purple macules, some of which were confluent. The temperature was 105 F. rectally, the pulse rate 120, the respiratory rate 36 and the blood pressure not obtainable. Other than moist rales at the bases and evidence of shock and sepsis, the physical examination was not remarkable. No laboratory data were obtained because of the short duration of the illness.

Postmortem examination by Dr. Lewis C. Pusch revealed in general that the patient was well developed and very well nourished. The body length was 167 cm., the estimated weight 100 Kg. The face had a diffuse ashen purple-gray hue. The chest and abdomen were mottled with sharply defined, irregularly shaped, largely confluent, nonelevated areas of a purple hue, a few millimeters to several centimeters in diameter, which on section appeared to be due to hemorrhage into the derma. More discrete similar areas were present on the back. The thighs and legs were of a diffuse purple hue.

The pleural and pericardial surfaces of the thorax were smooth and glistening. A few black-reddish brown, circular, scarcely elevated plaques, several millimeters in diameter, were

32. King, W. W.: Early Diagnosis of Cerebrospinal Meningitis by the Examination of Stained Blood Films, *J. A. M. A.* 71: 2048 (Dec. 21) 1918.

33. McLean, S., and Caffey, J.: Endemic Purpuric Meningococcus Bacteremia in Early Life: Diagnostic Value of Smears from Purpuric Lesions, *Am. J. Dis. Child.* 42: 1053 (Nov.) 1931.

34. Boone, J. T., and Hall, W. W.: Meningococcal Septicemia with a Report of Case Showing Organisms in the Direct Blood Smear, *U. S. Nav. M. Bull.* 33: 446, 1935.

found in the visceral pleurae, which otherwise was of a dull gray-brown-purple hue. The right lung weighed 660 Gm. The pulmonary vessels were grossly normal. The bronchial mucosa was gray. Calcified foci were found in the tracheobronchial nodes. The pulmonary substance was diffusely spongy, moist and brownish red. The left lung weighed 660 Gm. and resem-



Fig. 1 (case 1).—Section of lung, $\times 83$. Hemorrhagic disruption. Extravasated blood in pulmonary interstitium can be seen in a dark matrix of extravasated blood.

bled the right lung in every respect except that the bronchial tubes did not contain mucus but a reddish brown fluid, and the bronchial mucosa was red-brown. The thymus was inconspicuous.

The aorta was elastic; brownish red hemic pigmentation of the intima was noted.

The heart weighed 430 Gm. It was unremarkable on dissection except that the myocardium was somewhat soft.

The peritoneum was smooth and glistening.

The stomach, intestine, biliary tract and pancreas were grossly normal on dissection. The liver weighed 2,225 Gm., had a smooth capsular surface and was brownish gray. The cut surface was the same color, relatively homogeneous and of normal consistency.

The spleen weighed 250 Gm. and was grossly normal on dissection.

The right kidney weighed 195 Gm., the left kidney 300 Gm. The cortical surfaces were smooth and gray. The cortex was 1 cm. thick and gray with striations obscured. The medullas were 2 cm. thick and were red. The renal pelvis were grossly normal. A 1.5 cm. cortical cyst was present in the right kidney.

The bladder was grossly normal and contained approximately 100 cc. of clear brownish yellow urine.

Both adrenals were diffusely enlarged. On serial gross sections both were found to be occupied diffusely by diffusely reddish black hemorrhagic infiltration. The dimensions of the right adrenal were 7 by 3.3 by 1.5 cm. and its weight 13.5 Gm.; of the left adrenal 6 by 3.5 by 1.5 cm. and 12.5 Gm.

Microscopic examination by Dr. Pusch revealed that the sternal bone marrow was normal.

There were acute passive congestion and edema of the lungs. The capillaries as well as the arterioles and venules were engorged with blood, and the alveoli in general were partly collapsed, although areas of compensatory emphysema were seen. Within the capillaries the erythrocytes were normal and

the leukocytes fairly numerous. The latter consisted chiefly of monocytes, nonsegmented neutrophils and lymphocytes. In an occasional instance groups of eosin stained, ill defined, minute diplococoid objects of meningococcal morphology were distributed throughout the cytoplasm of both intracapillary and intra-alveolar phagocytic cells. There was also a considerable amount of intracellular brown pigment. Some alveoli were empty, while others were filled with serum, erythrocytes and macrophage cells.

In a bronchial lymph node the capillaries and sinuses as well as the interstices of the lymphatic cords were engorged with blood.

The myocardial fibers were swollen and pale, in part fragmented and in part disintegrated. Within one disintegrated fiber a group of the eosin stained diplococoid objects noted in the lung were seen; another group occurred within a small patch of fibrin and histiocytes attached to the mural endocardium. An occasional instance of perivascular leukocytic infiltration was encountered, also an occasional small focus of interstitial hemorrhage.

The esophagus, stomach, intestine and pancreas were not remarkable.

Toxic degenerative alteration of the liver was seen in granular cytoplasmic swelling and vacuolation of the hepatic cells, with pyknosis. Leukocytes were numerous in the sinusoids. The diplococoid bodies of meningococcal morphology noted in the lungs and heart could be found in occasional instances in the liver, occurring in groups, free and intracellularly in hepatic cells and in Kupffer cells. There were also intracellular granules of a brown pigment.

In the spleen acute passive congestion, an increased number of leukocytes in the pulp and questionable reticuloendothelial hyperplasia were observed. Groups of the minute meningococoid bodies were rather readily found, chiefly intracellularly. There was also a considerable amount of coarsely granular brown blood pigment.

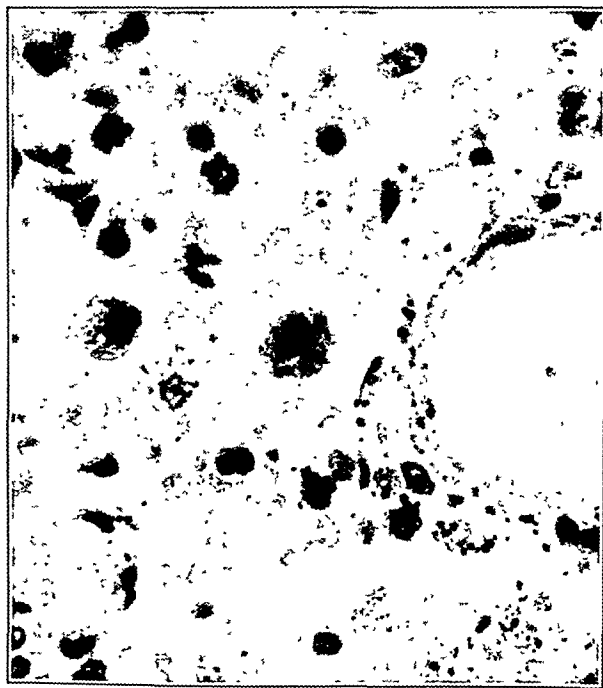


Fig. 2 (case 2).—Section of lung, $\times 835$. Capillary engorgement, as seen in shock, intra-alveolar hemorrhage and blood pigment in macrophage cells within alveoli. Many of the granules undoubtedly are artefacts occasioned by the embalming process. A few intracellular diplococoid bodies can be seen.

The adrenal glands were diffusely and decidedly hemorrhagic, with structural disruption and disintegration. The hemorrhage was of recent occurrence, without organization or phagocytosis of blood pigment. It extended into the periadrenal fascia. Only an occasional small patch of intact and uninvolved medullary

and cortical tissue was found, chiefly as extracapsular adenomatoid cortical nodules, which in some instances also were destroyed by hemorrhage. Groups of the eosin stained diplococoid bodies were found also in both adrenal glands, occurring both free and intracellularly in parenchymatous and in phagocytic cells. Multiple sections of the adrenal arteries and veins presented normal structures throughout.

In the kidneys there was granular cytoplasmic swelling of the tubular epithelium. The glomeruli were congested. There were a few interstitial areas of hemorrhage in the medullas.

There were edema and focal lymphocytic infiltration of the bladder, but in general nothing of note was observed.

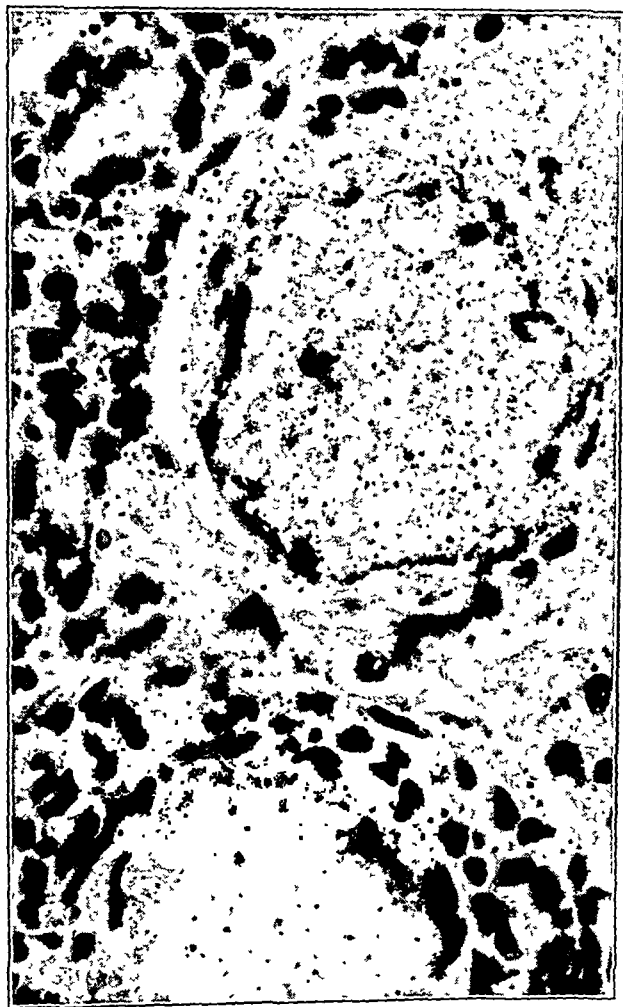


Fig. 3 (case 2).—Section of skin, $\times 835$. Capillary engorgement, vasculitis, thrombosis and hemorrhagic extravasation. Intramural and perivascular infiltrations of granulocytes, monocytes and lymphocytes. Some diplococoid bodies can be seen, but the majority of the granules are artefacts resulting from embalming.

In a section of skin through one of the purple areas of the abdominal wall dilated capillaries in the dermal papillae and an occasional small area of hemorrhage were seen.

CASE 2.—A white man aged 46 was admitted to the York Hospital on May 1, 1943 and died thirty-four hours after the onset of his illness. For several days preceding his illness he noted a mild upper respiratory infection. The night preceding the onset he felt reasonably well except for a mild headache. While at work on the morning of admission he was seized with severe chills, became very weak, vomited a turbid yellow liquid and perspired freely. He went to the first aid station, where his temperature was found to be 105 F. He was admitted by ambulance immediately with a provisional diagnosis of pneumonia. His past medical history was irrelevant.

On admission he was somewhat irrational and slightly cyanotic. He complained of general pains, particularly over

the lumbar region. Physical examination was generally unremarkable except for an occasional rale at each base. The temperature was 105 F., pulse rate 110, respiratory rate 30 and blood pressure 130/80. The catheterized urine was normal except for a trace of albumin; the hemogram showed a slight anemia and a leukocytosis of 40,200, with 84 per cent neutrophils, 31 per cent being of the nonsegmented variety.

The platelet count was 273,000 and the spinal fluid was normal. No sputum was obtained. Two successive blood cultures revealed meningococci (type 1). Within five hours after admission the first hemorrhagic manifestations were noted on the back. The patient became more cyanotic, and large ecchymotic areas appeared over the whole body, including the ears, face and extremities. During the period the blood pressure dropped rapidly to 52/20 and remained at very low levels to his death. There was little change in the pulse rate, but the temperature dropped progressively to 99 F. During the last twenty-four hours the patient vomited frequently and was very dyspneic, restless, sweating and cyanotic. He manifested all the symptoms of profound shock. The therapy consisted of plasma, oxygen, epinephrine, saline solution and dextrose by vein and intravenous sulfadiazine. The patient died thirty-four hours after the onset of his illness.

Postmortem examination by Dr. Pusch revealed that the body length was 170 cm. and the estimated weight 80 Kg. The patient was well developed and well nourished, with confluent areas of ecchymosis, dark purple and of irregular configuration, several centimeters in diameter, covering the skin of both arms, back, thighs and legs. The body had been embalmed by arterial injection.

In the thorax there was no free pleural fluid or increased amount of pericardial fluid. There was one fibrous adhesion at the left base. The heart weighed 410 Gm. There was no dilatation. It was unremarkable on dissection, including valves and coronary arteries, except for epicardial petechiae. Each lung weighed 735 Gm. There was a moderate amount of mucus in the right bronchus. Both upper lobes and the middle lobe of the right lung were spongy, moist and brownish gray on section, while the lower lobes were spongy, heavy and blackish red and dark reddish brown. The visceral pleurae were black. There was no appreciable sclerosis of the aorta. The thymus was inconspicuous. The tracheobronchial nodes were moderately enlarged and blackish red and moist on section.

The peritoneum was smooth and glistening. There were no adhesions, ecchymoses nor petechiae. The gastrointestinal and biliary tracts were unremarkable on exploration. The pancreas was grossly normal on dissection. The right adrenal gland measured 6 by 3.5 by 1.5 cm. and weighed 15 Gm. It was diffusely occupied by hemorrhagic infiltration, being dark red-brown on serial cross sections with only a few minute yellow foci of cortical tissue apparent. The left adrenal measured 8 by 3 by 1.5 cm. and weighed 20 Gm. Serial cross sections were in every way similar to those of the right adrenal. The spleen weighed 240 Gm.; the pulp was soft and red. The liver weighed 1,950 Gm. The cut surface was light brown, with visible lobulations. The right kidney weighed 180 Gm., the left kidney 200 Gm. The cortical surfaces were smooth. The cut surfaces were predominantly gray, with ill defined striations.

Microscopic examination by Dr. Pusch of a section of skin from an area of purple discoloration revealed the capillaries engorged with blood, in some instances with associated hemorrhagic extravasation, and with intramural and perivascular infiltrations of granulocytes and monocytes.

The predominant feature of the lungs was that of hemic engorgement of the capillaries, with intra-alveolar hemorrhage and numerous alveolar phagocytes filled with blood pigment, seen chiefly in a section of the lower lobe of the right lung. In this section also were found a few intra-alveolar masses of eosin stained small diplococci. In 1 instance similar structures occupied the cytoplasm of a macrophage histiocyte. There were very few lymphocytes and granulocytes and no appreciable fibrin; free serum was seen. The pleural capillaries were engorged with blood.

A tracheobronchial lymph node showed definite hemic engorgement of the capillaries with large numbers of erythro-

cytes and erythrocytic debris in the sinuses as well as within the lymphatic cords.

Swelling and vacuolation of the muscle fibers of the myocardium, especially subendocardially, were noted.

The aorta was not remarkable at the site of section.

Hemorrhagic infiltration of the adrenal glands occupied a diffuse distribution and extended into the periadrenal fascia, but it was of unequal density, with complete disintegration of most of the structural organization in the sections, while in some areas the structure was well maintained. The cortical and medullary substances seemed to be equally involved. Where destruction was complete a tendency toward polymorphonuclear leukocytic infiltration was apparent. A few clumps of meningococoid bodies were seen, notable within a dilated capillary in the capsule of the right adrenal, where, enmeshed with a few leukocytes in a ball-like mass of fibrin, they constituted an embolus.

The kidneys showed few areas of hemorrhage, chiefly intratubular. There was moderate tubular dilatation.

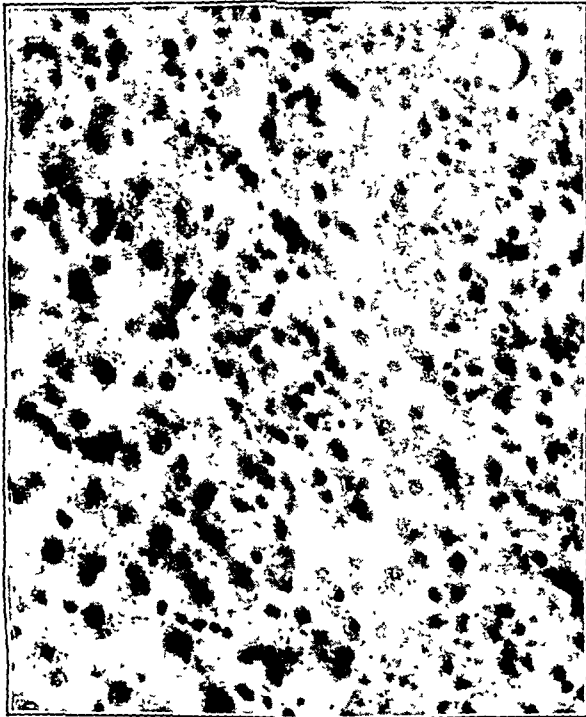


Fig. 4 (case 2).—Section of liver, $\times 375$. Margin of focal necrosis, pyknosis, karyorrhexis, karyolysis and coagulative necrosis of hepatic cells with associated leukocytic infiltration. In sinusoids of bordering viable hepatic tissue leukocytes are numerous.

The spleen showed acute passive congestion, with areas of hemorrhage.

The predominant feature of the liver was the presence of focal necroses, chiefly midzonal within hepatic lobules but also occurring along central efferent venules, attaining a diameter of 0.5 mm. and characterized by acute passive congestion, granular cytoplasmic swelling of the hepatic cells and a considerable amount of brown pigment, which was free, within hepatic cells, and to a less extent within Kupffer cells.

The pancreas exhibited focal toxic cytoplasmic swelling and disintegration of the acinar cells of moderate degree.

TREATMENT

The treatment of this rapidly progressive dramatic malady requires prompt, decisive and heroic measures. With the isolated case, waiting for blood culture reports will mean that the patient has either died or progressed to a point at which therapy is of no avail. When the physician is confronted with an overwhelming septicemia, repeated blood smears should be frequently made in the hope of recognizing the meningococci. If pur-

puric spots have appeared, a smear of these areas should be made for the same purpose. In an epidemic of meningococcic meningitis specific therapy should begin immediately in all suspected cases.

Review of Adult Cases with a Summary of Available Clinical and Autopsy Findings

No.	Author	Year	Age	Sex	Comment
1. Little ⁷		1901	22	♂	No laboratory report, along with bilateral adrenal apoplexy and hemorrhagic phenomena there was also tuberculosis of lungs and adrenals
2. Andrewes ¹⁰		1906	53	♂	Meningococcal septicemia
3. Elliot and Kaye: Quart. J. Med. 10 : 361, 1917		1917	Adult	♂	Meningococci in blood and spinal fluid
4. Herrick: Arch. Int. Med. 23 : 409 (April) 1919		1921	21	♂	Meningococcal septicemia; autopsy limited to head
5. Herrick, <i>ibid</i>		1919	21	♂	Meningococcal septicemia
6. Kessel: M. J. Australia 2 : 456, 1925		1925	30	♂	No laboratory report
7. Middleton and Duane: Am. J. M. Sc. 177 : 648, 1929		1929	18	♂	Meningococcal septicemia
8. Boone and Hall ²⁴		1935	18	♂	" " " "
9. Foucar ²³		1936	20	♂	No laboratory report; sections of brain showed gram-negative cocci
10. Simpson ²⁴		1937	Adult	♀	" " " " " "
11. Craster and Simon ²⁵		1938	42	♀	24 hours; coarse purpuric lesions in mucous membranes and skin with bilateral adrenal apoplexy
12. Carey ¹⁷		1940	27	♀	Meningococci found in pia-arachnoid at autopsy
13. Grace, Harrison and Davie ²⁶		1940	20	♀	Patient recovered; meningococci recovered from blood and spinal fluid
14. Grace, Harrison and Davie ²⁶		1940	20	♀	No laboratory report; autopsy cultures of blood and organs sterile; gram-negative cocci found in kidney tuft
15. Leone ¹⁸		1941	43	♂	Laboratory reports not given; patient recovered
16. Drummond and Tooke ¹⁹		1941	31	♂	No bacteriologic report; no organisms noted in sections
17. Drummond and Tooke ¹⁹		1941	31	♂	Only adult case found in Negro; blood cultures sterile and no organisms found in sections; no hemorrhages in the skin, but diffuse ecchymoses of the conjunctiva, lining of the fourth ventricle, visceral pleura and many other structures
18. Sharkey ²¹		1941	40	♀	Cultures of blood, spinal fluid and heart's blood were sterile; sections showed rare isolated bodies resembling gram-negative cocci
19. Kvedar ¹⁶		1942	58	♀	Eight months pregnant; delivered dead fetus in eight hours; patient recovered; blood culture sterile but complement fixation test positive for meningococcus; no organisms reported in spinal fluid, which contained 21,000 cells
20. Thomas and Leiphart.....			34	♂	Meningococci found in blood smear and culture
21. Thomas and Leiphart.....			40	♂	No laboratory report; diplococcal bodies of meningococcal morphology in the cytoplasm of phagocytic cells in the lungs; in each adrenal these bodies were intracellular and extracellular
					Meningococci present in blood; meningococcal bodies found in lungs and adrenals

Therapy falls into two natural categories, specific and supportive. Chemotherapy with sulfadiazine in the form of the sodium salt should be given at once. About 0.05 Gm. per pound of body weight is the initial dose

intravenously. The total daily requirement thereafter is approximately the same amount. Efforts should be made to keep the sulfadiazine level to 15 mg. per hundred cubic centimeters. Sulfathiazole is the drug of second choice, followed by sulfapyridine and sulfanilamide. While there is a great deal of dispute about the combination of chemotherapy and serotherapy in the treatment of meningococcal infections, the seriousness of this syndrome makes it necessary to use all the weapons in our possession. There should be no waiting to see if the effects of the chemotherapy will suffice. Polyvalent antimeningococcus serum should be started along with chemotherapy in doses of 50 to 150 cc. intravenously, repeated every six to twelve hours for three doses and daily thereafter if necessary. The use of meningococcus antitoxin in 100,000 units intravenously may be substituted for the serum. We have had no experience with the antitoxin.

Supportive measures include the use of fluids with sodium chloride to combat the dehydration from vomiting and perspiration. With the appearance of hemocentration, large and adequate doses of plasma should be used to combat the shock. As there is always deep cyanosis and dyspnea, oxygen should be used early and as long as necessary. The use of adrenal cortex extract in large doses is justified primarily to combat the capillary permeability and only secondarily to replace the destroyed hormone. Adrenal cortex extract is given twice daily in 10 cc. doses or the equivalent dose of the synthetic cortical derivative desoxycorticosterone. One dose of epinephrine may be given; if there is evidence of improvement, this may be repeated. While this drug has been used by several clinicians, there is no evidence that its use is warranted in this condition.

The worth of this treatment is difficult to evaluate. In most cases progressive irreversible changes have probably taken place early in the disease almost before treatment has been instituted. Carey, Grace and his associates and Sharkey have reported recoveries with the treatment as outlined. Harries³⁵ reported 3 cases of fulminating meningeal infection with imperceptible pulses on admission to the hospital and yet made complete recoveries (ages unknown). Rucks and Hobson³⁶ report a case in a child with recovery. They also note a case by Bickel³⁷ with recovery; the details of this case are not available at the present time. Since these recoveries have all occurred since 1940 there is no good reason why a certain number of early or less severe cases should not be given the benefit of all that modern therapeutics has to offer.

SUMMARY

1. The syndrome of severe sepsis with hemorrhagic phenomena is being recognized with greater frequency by clinicians.

2. As more cases are being reported, the meningococcus has been found to be the chief, if not the sole etiologic agent.

3. Adrenal hemorrhage is merely part of the generalized bleeding diathesis and is not concerned per se with the rapid death.

4. These patients die from the effects of severe shock induced by the overwhelming sepsis.

35. Harries, G. E., in *Discussion on Modern Methods in the Treatment of Meningococcal Fever*, Proc. Roy. Soc. Med. 33: 560, 1940.
Hobson, J. J.: *Purpura Fulminans* (Waterhouse-Report of Case with Recovery, J. Pediat. 22:

— de Waterhouse-Friderichsen (Septicémie et purpura) terminé par la

60: 1058, 1940.

survécu avec guérison, Rev.

5. It is impossible to predict from clinical and laboratory methods which cases exhibit adrenal hemorrhage.

6. The status of the thymolymphatic system plays no part in the adult cases. As the adults are similar to the juveniles, it may be assumed that it is almost never a factor.

7. Rapid diagnosis can be made by smears of the purpuric areas.

PEPTIC ULCER, GASTRITIS AND PSYCHONEUROSIS

AMONG NAVAL PERSONNEL SUFFERING FROM DYSPEPSIA

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This paper deals with the diagnosis of the condition of Navy and Marine patients who present symptoms suggesting chronic disease of the upper part of the gastrointestinal tract. That such a group of patients constitutes a problem among military personnel has been emphasized repeatedly in current medical writings.

Gill,¹ after a thousand gastroscopic examinations carried out in an effort to "determine the value and indications for gastroscopy in the assessment of the service dyspeptic," has confirmed its value by uncovering 102 cases of gastritis in 308 cases in which the roentgenologic observations had been negative. It is surprising that the condition of none of the 806 patients studied was diagnosed as psychoneurotic. Flood² made psychiatric studies of 47 of 75 service patients suffering from proved peptic ulcer. Twenty-five presented symptoms of an anxiety state or an anxiety neurosis. No mention was made of patients presenting symptoms in the absence of roentgenologic observations. No gastroscopic study was reported. Rush³ reported on 200 dyspeptic service patients near the combat area in the South Pacific. In 106 cases no positive objective evidence of organic disease could be demonstrated, and the patients were judged to have functional disorders of the gastrointestinal tract. All of the patients were found to be in a state of either acute or chronic emotional ferment. Gastroscopies were not possible, and Rush expressed the belief that the group may have included some patients whose symptoms were caused by chronic gastritis.

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1. Gill, A. M.: *Evaluation of Gastroscopy: Analysis of 1,000 Examinations*, Lancet 1: 333-334 (March 13) 1943.

2. Flood, C. A.: *Peptic Ulcer at Fort George G. Meade, Maryland*, War Med. 3: 160-170 (Feb.) 1943.

3. Rush, A.: *Gastrointestinal Disturbances in the Combat Area: I. Preliminary Observations on Peptic Ulcer*, J. A. M. A. 123: 389-391 (Oct. 6) 1943; II. *Preliminary Observations on Functional Disorders of the Digestive Tract*, ibid. 123: 471-473 (Oct. 23) 1943.

All of these investigations have one serious drawback: they fail to study each patient sufficiently to show whether he had solely a peptic ulcer, gastritis, a psychoneurosis or some other disorder, or whether he had a combination of two or more of these conditions. We believe that any value in the present investigation springs from the fact that all the patients are being studied in the same way, including roentgenologic, gastroscopic and psychiatric studies.⁴

For service patients, the problem of differential diagnosis of the diseases causing the symptoms just mentioned does not differ in any basic way from the problem for civil personnel in peacetime, but there are important minor practical differences. Since these patients are confronted with danger and unhappy maladjustments incident to service, some will knowingly and some unconsciously present symptoms in order to avoid danger or discipline. The similar tendency in civil personnel is less likely to express itself in symptoms because they have wide choice of occupation and are exposed to less danger. Furthermore, a physician in civil life is usually in no position to afford escape for a patient from his environment, whereas service physicians can survey a patient from the service back into civil life. This fact throws a heavy responsibility on the Navy physician, and the Navy owes him the time and the equipment to allow even more exact diagnosis than may be required in civil life. In civil life it is necessary to rule out malignant lesions and to try to relieve symptoms; in service it is also necessary to decide whether a man is to be retained in service.

METHODS (CARRIED OUT IN ALL CASES)

Roentgenologic methods are best suited for finding a duodenal ulcer and both roentgenologic methods and gastroscopy for showing a gastric ulcer, gastroscopy alone is best suited for visualizing various degrees of gastritis, and a psychiatric study is the only orderly way in which to reveal psychoneurotic tendencies. In each instance, roentgenologic examination preceded gastroscopy, so that it would reveal any esophageal lesion that might make gastroscopy dangerous. While the patient was under surface (throat) anesthesia, gastroscopy was performed by one of us (Schindler) by means of the Schindler flexible gastroscope after the stomach had been emptied with a large flexible rubber tube. The validity of gastroscopy for our purposes may be questioned only in that gastroscopy may fail to reveal minor inflammatory changes. A striking correlation between gastroscopic and microscopic observations in cases of gastritis has been demonstrated previously.⁵ There is no question that the gastroscope can show the severe, acute, ulcerative form of gastritis reported for civilian patients having duodenal ulcer.⁶ Nevertheless it is necessary to admit that misinterpretation of the gastroscopic picture is possible.

All but two of the psychiatric interviews were carried out by one of us (Underdahl). Each patient was studied with a total disregard for the presence or absence of organic disease. In no instance was a psychiatric diagnosis made in the absence of neurotic symptoms or simply because organic disease was not found. Whenever a diagnosis of psychoneurosis was

made, it was made because of multiple psychoneurotic tendencies, frequently dating back to childhood. A psychoneurosis can exist in the presence of organic disease, and with this method of psychiatric interview such a case is clearly brought out.

The other methods of study used were (with one exception, the Palmer acid test) those usually employed in the diagnosis of disease of the upper part of the gastrointestinal tract, such as fractional analysis of gastric contents, examination of stools for occult blood and routine examinations of blood and urine. In the performance of the Palmer acid test, the presence and location of pain and tenderness were noted (1) while the stomach was empty, (2) while 200 cc. of 0.3 per cent solution of hydrochloric acid was introduced for fifteen minutes, (3) while the stomach was empty and (4) while 200 cc. of 2 per cent solution of sodium bicarbonate was introduced for fifteen minutes. The complete evaluation of these studies must await the completion of a longer series.

SUBJECTS FOR STUDY

The patients were all of Navy or Marine personnel and can be divided into those who had had sea duty and those who had not. The former had been subjected to rough food, lack of milk and more fried food than is good for some persons and in some instances had had combat fatigue, seasickness, tropical disease and near starvation under unusual combat conditions. The others comprise those who had had duty only in the United States and had had the advantage of a good, regular diet, usually including milk. They correspond to patients of the same age group in civil life except that they too may have been apprehensive of service discipline and future danger. Fairly frequently a proportion of these subsisted at home and had an opportunity to make any needed dietary adjustments.

There is no satisfactory term to cover all the symptoms that the patients may present. Unfortunately "dyspepsia" is a synonym for indigestion in general, and properly used it includes symptoms of the large bowel as well. The symptoms with which we are concerned are those of the upper part of the gastrointestinal tract, anorexia, heartburn, nausea, vomiting and pain in the upper part of the abdomen. The pain is characteristically epigastric, but sometimes it is localized sharply in some spot included in the triangle bounded by the gallbladder, the spleen and the umbilicus. There may or may not be any reference of pain to a shoulder blade or through the body at the level of the origin of the pain. If there is vomiting it may or may not give evidence of bleeding or of obstruction of the upper part of the intestine. Tenderness may occur either at the location of the pain or elsewhere. Fairly frequently there are accompanying symptoms not referable to the gastrointestinal tract. Of these, headache, dizzy feelings, weakness, dyspnea and coldness and sweating of the hands and feet are examples. Less commonly there is idiosyncrasy to certain foods or other suggestive evidence of allergy in the patient's history or in the family history.

The more common diagnoses expected to fall within the scope of this paper are peptic ulcer (duodenal or gastric), chronic gastritis, duodenitis and various psychoneuroses. Because of the young age of most of the patients, mainly 20 to 30 years, duodenal ulcer should predominate over gastric ulcer. Malignant lesions and chronic cholecystitis will be uncommon.

4. We do not know of any report of a similar investigation.
5. Schindler, R., and Ortmyer, M.: Histopathology of Chronic Gastritis, *Am. J. Digest. Dis.* 9: 411-415 (Dec.) 1942.
6. Konietzky, G. E.: Bemerkungen zu W. Fischer: "Einiges über Magengeschwür, Magenkrebs und ihre Beziehungen zueinander," *Med. Klin.* 37: 35-36 (Jan. 10) 1941.

RESULTS OF STUDY

The results of the study thus far are not valid statistically and will not be presented now in any detail. Forty-five unselected patients have been studied as outlined. In 23 instances peptic ulcer (duodenal only) was revealed by roentgenologic examination with characteristic deformities, and these comprise group 1. In 22 instances no peptic ulcer was found by roentgenologic examination and none has been found by gastroscopy. These comprise group 2. We are indebted to Commander John Camp (MC), U.S.N.R., who carried out the roentgenologic studies of the gastrointestinal tract.

GROUP 1.—In the 23 cases in which peptic ulcer was demonstrated by roentgenologic examination, a single duodenal ulcer was seen in each instance. Gastroscopy did not visualize any peptic ulcer because none was gastric. There were gastroscopic examinations in all these 23 cases, but in 3 of them gastroscopy was unsuccessful. In 1 case severe gastritis was present, in 5 there was a mild degree of gastritis, in 2 there was questionable gastritis and all of the others were negative. In the case in which there was pronounced gastritis, severe hypertrophic gastritis of the antrum and superficial changes of the lower portion of the anterior wall were seen. In 1 case there was only mild superficial gastritis associated with localized hypertrophic gastritis of the body of the stomach. Only these 2 cases correspond to the frequent cases of severe gastritis combined with duodenal ulcer encountered so regularly in civil practice.

Psychiatric interviews in this group did not reveal any one suffering from severe psychoneuroses at the time of examination, but 2 patients had moderate and 4 had mild neurotic symptoms. Two of these had had a reactive depression and situational neurosis respectively in the past. The remaining 17 patients did not have any neurotic tendencies. There was no apparent correlation between gastritis and neurosis, since in only 1 case were both present. In no instance in this group were the psychoneurotic symptoms severe enough to suggest discharge from the service. One patient was admitted with a diagnosis of gastric neurosis, but subsequently he was found to have three separate organic diseases of the upper part of the gastrointestinal tract (case 1). Psychiatric interview did not reveal any neurotic tendencies. Another patient was admitted suffering from gastric neurosis. After complete study he was found to have a duodenal ulcer as well as a neurotic background.

In each instance in this group the diagnosis, established with reasonable degrees of confidence, was duodenal ulcer.

GROUP 2.—In these 22 cases peptic ulcer was not demonstrated by roentgenologic examination. In no case did gastroscopy visualize an ulcer overlooked by roentgenologic examination. In the cases in which there were varying degrees of gastritis as visualized through the gastroscope, roentgenologic examination had not given any evidence of the gastritis. Gastroscopically, in 11 cases the gastric mucosa proved to be entirely normal. In 2 cases mild hypertrophic gastritis was seen. In 1 case pronounced chronic superficial gastritis of the body of the stomach combined with atrophic gastritis of the antrum was seen. In 3 cases mild and probably insignificant superficial gastritis was observed. However, in 3 cases there was outspoken

chronic superficial gastritis. In 2 additional cases a combination of superficial with atrophic gastritis was seen.

Psychiatrically this is a very important group. In 11 cases there was a definite psychoneurosis, mostly of the anxiety and mixed types, sufficiently severe to necessitate discharge from the service. In 3 of these 11 the psychoneurosis was superimposed on a constitutional psychopathic inferiority. Of the remaining 11 patients 6 had mild but very definite neurotic symptoms and only 5 were considered not neurotic, although 2 of the latter were restless and high strung. The diagnoses on admission varied widely, but only 1 of these patients was admitted originally to the psychiatric service. Of the 11 patients who had definite psychoneurosis, 6 had mild to severe gastritis and 5 had normal gastric mucosa. Of the 6 who had mild neurotic symptoms, 2 had gastritis and 4 had normal mucosa. Of the 5 without neurotic symptoms, 3 had mild gastritis and 2 had normal mucosa. One of the latter was suspected of malingering, although this was not proved.

In summarizing the differential diagnoses in this group, it is interesting that among these 22 cases there were 11 in which the diagnosis was made by gastroscopic examination and 9 of the remaining in which the diagnosis was made by psychiatric approach. In the other 2 neither psychiatric, gastroscopic nor any other study afforded a satisfactory diagnosis.

REPORT OF CASES

CASE 1.—*Diagnosis of "intestinal neurosis" changed to diagnosis of three separate organic diseases of the gastrointestinal tract.*

An electrician's mate, second class, aged 40, had been a telephone lineman who ate irregular meals. He had enlisted a year before admission to the hospital and had not had any sea duty. The patient had had laparotomy through the right lower abdominal quadrant in 1926 for "freeing adhesions," in 1932 appendectomy for typical symptoms of appendicitis and in 1938 herniorrhaphy. On one occasion in 1937 he had been awakened by severe pain in the epigastrium extending to the shoulder blades; the residual soreness lasted several days. Since 1939 the patient had had epigastric pain several times a week, a half hour to one hour after each evening meal. The pain was relievably by either food or soda. Later, in 1941, he had controlled all symptoms by eating his meals regularly, but after a drinking bout the pains returned and have continued to the time of writing of this paper except during his several months of boot training.

The patient was admitted to the U. S. Naval Hospital, Corona, Calif., in August 1943, complaining of epigastric burning pain and occasional vomiting. His physical examination gave negative results except for obesity (weight 232 pounds [105 Kg.], height 6 feet 1 inch [185 cm.]) and for the scars of his several operations. The first series of roentgenograms of the gastrointestinal tract was entirely negative, and the roentgenogram of the gallbladder with orally administered dye was negative. Analysis of gastric contents yielded normal values, the highest figure for free acid being 31. At this point, diagnosis of intestinal neurosis was made before a psychiatric interview was undertaken. On the second roentgenogram of the gastrointestinal tract a penetrating duodenal ulcer was observed. No abnormality of the stomach was seen.

Laparotomy was performed, and, in addition to an ulcer 1.5 cm. in diameter in the superior border of the duodenum, the gallbladder was subacutely inflamed, distended with purulent material and filled with small stones. Cholecystectomy was performed. Decision as to the advisability of surgical treatment of the duodenal ulcer was reserved until a later time to note the effect of the cholecystectomy on the patient's symptoms. The stomach appeared normal.

The patient made a satisfactory recovery from the surgical procedure, but for a month and a half after being ambulatory

he had nausea and vomiting after some meals and then, even while he was on a Sippy regimen, his old preoperative symptoms returned. Three stools were negative for occult blood. When a Palmer acid test was performed, the introduction of acid produced epigastric pain which lingered until the alkali was introduced. Gastroscopy revealed severe hypertrophic gastritis. The greater curvature of the antrum showed extensive pathologic changes. At first it protruded like a tumor and, though this bulging disappeared when more air was blown into the stomach, the mucosa still looked swollen and nodular. The mucosa of the sphincter antri was shiny and glistening but had many patches of adherent mucus. Veil-like layers of thin mucus were seen in the lowest portions of the anterior wall. The upper portions of the stomach appeared entirely normal. A third roentgenogram of the gastrointestinal tract did not show any change from the second examination. The duodenal deformity was unchanged, and there was no visualization of gastric pathologic change. A psychiatric interview did not afford any suggestion of neurotic tendencies.

The patient had a duodenal ulcer, chronic cholecystitis with stones and hypertrophic gastritis. Since his dyspeptic symptoms continued unchanged after cholecystectomy and under a subsequent medical regimen for his ulcer, he was surveyed out of the service. The symptoms which continue are caused most probably by the severe gastritis associated with the ulcer. It was thought inadvisable to operate on him for his ulcer because of the mechanical difficulties of performing gastric resection on a patient weighing 232 pounds (105 Kg.), because of the fact that symptoms of the ulcer had existed prior to enlistment and because of the extensive gastritis present.

CASE 2.—Diagnosis of duodenal ulcer changed to diagnosis of anxiety neurosis.

A yeoman first class aged 25 considered himself well until March 1943, one and a half years after enlistment, when he began to have pain in the midepigastrium, especially in the late morning and late afternoon and frequently on waking at night. Drinking of milk produced some relief. The pain was brought on by highly seasoned foods. It disappeared for several weeks at a time only to recur for weeks at a time. From June to August the patient was nearly free from pain while following a strict ulcer-regimen, but the pain recurred when a special diet was no longer possible. His pain then became intractable during several months of dissatisfaction with a superior officer.

The patient was admitted to the U. S. Naval Hospital, Corona, Calif., in December 1943. Physical examination gave negative results except for slight, questionable epigastric tenderness. He was in a good state of nutrition; he failed to respond to a Sippy regimen. On admission a series of roentgenograms of the gastrointestinal tract did not show any abnormality; a roentgenogram of the gallbladder with orally administered dye was also negative. No abnormality was found by gastroscopy, gastric analysis or the Palmer acid test.

The psychiatric interview and an interview with a parent yielded important information. Throughout childhood the patient had been shy and moody. He talked and walked in his sleep. On seeing a dead friend he became violently ill for a week. Later he wanted to study medicine but was again violently ill for a week after dissecting a cat. Fairly frequently he was depressed and felt that he might as well be dead. On the spur of the moment, a few days before he was to be married, he sent a telegram to his fiancée saying it was all off. He has never made further marital plans. The patient enlisted six months before Pearl Harbor but, with some college training, had hoped to be an officer and chafed under orders of a Wave officer in his department. In addition to the epigastric distress, periodic headaches developed. He also became more dissatisfied, nervous, worried and irritable. He frequently stated that he wanted to be discharged from the service. On sick leave from the hospital his epigastric pain became severe but he did not seek any medical aid. On returning from leave, though he was neat, clean and well nourished, he was irritable, critical, restless and apprehensive and frequently bit his finger nails.

The diagnosis was changed to anxiety neurosis (superimposed on emotional instability), and the patient was informed that he was to be surveyed out of the service. From then on, although he has remained as a patient for more than a month

while his papers were being cleared, he has complained less of pain while having a regular diet. However, he has been undependable in his work and has shown some irritability as before.

CASE 3.—Extensive superficial gastritis and mild psychoneurosis in a case of constitutional psychopathic inferiority.

A seaman first class aged 31 in the Coast Guard Service enlisted in June 1942 and did not have any overseas duty. He stated that he had had a "nervous stomach" all his life but he first complained of epigastric pain in October 1942. There was a past history of heavy drinking and excessive use of tobacco. The patient occasionally vomited and according to his story sometimes had blood in his stools. The pain centered in the epigastrium, but a separate gas pain, somewhat relieved by belching, tended to be in the left flank. Hot or cold drinks taken between meals aggravated the pains. There was little or no periodicity of the pain.

By August 1943 the epigastric pain became intense, and the patient was admitted to the U. S. Naval Hospital, Corona, Calif., on Dec. 29, 1943. Physical examination gave negative results except for a tremor of the extended fingers, voluntary rigidity throughout the abdomen, mild pes planus and external and internal hemorrhoids. The patient was restless and mildly apprehensive. Two series of roentgenograms of the gastrointestinal tract were negative. By proctoscopy the rectum and sigmoid were normal. There was no anemia, and three stools were negative for occult blood. Analysis of gastric contents showed distinct hypochlorhydria. The highest free acid figure was 8. (A test meal was used, but histamine was not used.) At gastroscopy striking changes were seen in the mucosa of the fundus. Everywhere there were thin layers of grayish, adherent mucus between and under the folds of the gastric mucosa. A diagnosis of extensive superficial gastritis was made.

Psychiatric interview afforded a separate diagnosis. Born to a family in which the father was rarely at home, the boy had frequent temper tantrums, was shy and irritable in crowds and was subject to moody spells. He lived in the tough part of town, had sexual intercourse from the age of 13 years and had gonorrhea several times. At the age of 14 years he started riding the freight trains. The expected subsequent career was interrupted only temporarily by an unhappy time in military school and public schools until he completed the twelfth grade. Since then the patient has been an admitted "bum," working seasonally in resort hotels, drinking, smoking three packages of cigarets a day and living with various women. At each place of employment he was restless and "sick and tired of it" and soon had to quit and move on. He was always introspective and was quickly aware of, and concerned about, any symptoms. During nervousness the patient had frontal and suboccipital headaches. His intelligence quotient is high; he writes a little, but not for publishing, thinks individually, is rather philosophic in his injudicious treatment of himself and has avoided crime because of the unpleasant sequelae. He has an excellent insight into himself and very much regrets not having studied for a profession. In addition to having chronic gastritis, this man has a psychoneurosis superimposed on a constitutional psychopathic inferiority.

SUMMARY

Forty-five consecutive patients of the naval service presented themselves at the U. S. Naval Hospital, Corona, Calif., with a variety of complaints referable to the upper part of the gastrointestinal tract. On the basis of symptoms and observations this group was divided into two classes: those that had a duodenal ulcer demonstrable by roentgenologic examination, and those that did not have an ulcer so far as could be seen by roentgenologic examination. In addition to the usual routine procedures employed in establishing the correct diagnosis, gastroscopy was performed on all of these patients and they were given a psychiatric interview.

Using this approach to the problem it was observed that, in the group of 23 patients suffering from duodenal

ulcer shown by roentgenologic examination, gastritis and psychoneurosis were not common. In the other group of 22 without roentgenologic evidence of duodenal ulcer, nearly 80 per cent had some degree of psychoneurosis and 50 per cent had some degree of gastritis.

From this small series of patients it would appear that the usual subject suffering from a duodenal ulcer is not in need of a gastroscopic or psychiatric examination unless such an examination is specifically indicated. However, in making the final diagnosis for the group not having a duodenal ulcer it is apparently very necessary to utilize both gastroscopy and a thorough psychiatric interview.

NEUTRALIZATION OF THE VENEZUELAN ENCEPHALOMYELITIS VIRUS BY HUMAN SERUMS

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AND

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CARACAS, VENEZUELA

A few years after Meyer, Haring and Howitt¹ isolated the western equine encephalomyelitis virus and TenBroeck and Merrill² showed its difference from the eastern encephalomyelitis strain, reports about similar agents in South America began to appear. In 1935 Rosenbusch³ in Argentina described an encephalomyelitic virus resembling the western strain. The encephalomyelitis viruses found in Peru⁴ and Chile⁵ are considered to be of the same type. In Brazil some neurotropic viruses of equine origin were also isolated, as, for example, that from Bahia.⁶ Nevertheless, the immunologic and pathologic characters of the last mentioned rank it better among rabies viruses.⁷ As to Venezuela, the equine encephalomyelitis began to spread in 1936 and the corresponding virus was isolated by Kubeš and Rios⁸ in 1938. This virus proved to be decidedly different immunologically from both the western and the eastern encephalomyelitis strains⁹ and also from the rabies virus.¹⁰ The same type of virus was found also in Colombia¹¹ and on the island of Trinidad.¹²

Whereas the importance of the western and eastern encephalomyelitis virus in the etiology of human

encephalitis is by now established beyond any doubt, there were until recently no reports on the transmission of the South American viruses to man, though the possibility of this was suspected many times. So, for example, Casella¹³ in Argentina mentioned the coincidence of some encephalitis cases in children and adults with the equine encephalomyelitis epizootic registered in 1941 in the Cordoba province. In 1935 Albornoz¹⁴ in Colombia reported cases of human encephalitis in relation to the equine encephalomyelitis ("peste loca de las bestias") in the department of Huila. Similar observations were made by Herran in the Colombian Goajira. Nevertheless, Soriano Lleras¹⁵ could not prove any neutralizing antibodies for the Venezuelan type of equine encephalomyelitis virus in the serums of 6 persons who had recovered from encephalitis.

As to Venezuela, though several accounts exist about persons falling ill after having handled encephalomyelitic animals, it never occurred in such a form as to be able to draw the attention of public health authorities. For this reason there is so far no evidence available concerning cases of encephalomyelitis among country people. It must be presumed, of course, that this kind of infection does occur quite frequently as a result of the high contagiousness for man which the Venezuelan encephalomyelitis virus was found to possess in laboratories, and, on the other hand, as a result of the large extension of Venezuelan territory where the illness is widespread among equines.

The first report on a laboratory infection with the Venezuelan encephalomyelitis strain V-1938¹⁶ came from the Rockefeller Institute, New York (Casals, Curnen and Thomas¹⁷). The disease took a mild and inconspicuous course in 2 laboratory workers. From the nose and throat washings, and from the blood of 1 person the Venezuelan virus was isolated, and the serums of both persons contained a high amount of specific antibodies.

Another human infection with the Venezuelan encephalomyelitis virus¹⁸ occurred in the Laboratory of Yellow Fever Research Service, Rio de Janeiro, Brazil (Lennette and Koprowski¹⁹), where 8 persons fell ill a few days after having handled boxes with suckling mice inoculated with the Venezuelan virus. The authors assume that the infection in this case was due to the aspiration of dust from wood shavings in the boxes, contaminated by the blood and carcasses of little mice partially devoured by their mothers. Although in two persons the illness was rather severe, with signs of some disturbances of the central nervous system, in the 6 others it followed a mild and uneventful course. The Venezuelan encephalomyelitis virus was found in the blood of 6 of the persons, and the serums of all 8 persons had high neutralizing antibody titers.

In view of these reports, we considered it important to ascertain whether some laboratory infections have not also occurred in the Institute for Veterinary

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6. Valle, A. L.: Da ocorrência da encefalomyelite epizootica nos equideos do Brasil, Thesis, Bahia, Brazil, 1939, vol. 1, pp. 1-47.
7. Cunha, R.: Relação imunológica entre o vírus da encefalomyelite equina, isolado na Bahia, e o vírus rábico, *Bol. Soc. brasil. de med. vet.* 11: 75-76 (July-Sept.) 1942.
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9. Beck, C. E., and Wyckoff, R. W. G.: Venezuelan Equine Encephalomyelitis, *Science* 88: 530 (Dec. 2) 1938. Kubeš and Rios,⁸ Kubeš and Diamante.²¹
10. Kubeš, V., and Gallia, F.: Fenomeno de para-inmunidad entre los virus de la encefalomyelitis equina y de la rabia paratífica de Venezuela, *Bol. d. Inst. invest. vet.* 1: 81-98 (Nov.) 1942.
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14. Albornoz, J. E.: La peste loca de las bestias (enfermedad de Borna), *Bol. de agric.*, May 1935, supp. 26, pp. 5-8.
15. Soriano Lleras, A.: Nota sobre encefalomyelitis equina en Colombia, *Bol. Inst. nac. hig. Samper Martínez*, October 1943, no. 11, pp. 3-5.
16. This strain was sent by our institute to Dr. J. R. Paul (Yale University School of Medicine) and he submitted it to the Rockefeller Institute, New York.
17. Casals, J.; Curnen, E. C., and Thomas, L.: Venezuelan Equine Encephalomyelitis in Man, *J. Exper. Med.* 77: 521-530 (June) 1943.
18. This strain is the same as the foregoing. It was sent by our institute to Beck and Wyckoff (Lederle Laboratories) in 1938. The latter forwarded it to Cunha at Rio de Janeiro, who in turn shipped it to Lennette and Koprowski.
19. Lennette, E. H., and Koprowski, H.: Human Infection with Venezuelan Equine Encephalomyelitis Virus, *J. A. M. A.* 123: 1033-1095 (Dec. 25) 1943.

Research, where several persons have been working for about five years with the same V-1938 encephalomyelitis strain that was the causative agent of the aforementioned 10 human cases. For this reason we carried out the serum neutralization test with the serums of various employees in our institute, presuming that the evidence of antibodies against this virus could be considered a proof of a previous infection which passed clinically unnoticed.

TECHNIC OF SERUM NEUTRALIZATION

In all, 16 human serums were tested, 13 of which were taken from persons working in the Institute for Veterinary Research and the 3 remaining ones from country people. All persons were men.

The serums were tested against the original V-1938 encephalomyelitis strain isolated in 1938 and since then used for the elaboration of chick embryo encephalomyelitic vaccine. In order to eliminate possible individual oscillations of the virus titer, a 20 per cent suspension in saline solution was prepared from the brains of 6 mice

The three laboratory technicians (J. M., P. Ch., A. L.) of group 2 who formerly worked with the virus (elaboration of vaccine) have now not had, for two and three and one half years respectively, any contact with the virus.

Neither of the 3 employees of the institute (C. P., M. C., N. M.) in group 3 worked with the encephalomyelitis virus systematically. The laboratory technician C. P. helped two years ago, at one time or another, in the elaboration process of the encephalomyelitis vaccine. The person M. C. performed for the space of a month the postmortem examinations on 13 encephalomyelitic horses during the encephalomyelitis epizootic in the summer of 1943. The third person of this group, N. M., has for three years been bottling the formaldehyde inactivated encephalomyelitis vaccine and has never worked with the active virus.

The serums of the 6 persons of groups 4 and 5, who had never come into contact with encephalomyelitis virus, served as control negative serums for the other three groups. Three of these persons are

Details and Results of Neutralization Tests

Serum		Mice Inoculated Intracerebrally (0.03 Cc.) with Serum-Virus Mixtures Dilution of V-1938 Virus									Titer of Virus †	Neutralization Index ‡
Group	Person	10 ⁻²	10 ⁻⁴	10 ⁻⁶	10 ⁻⁸	10 ⁻¹⁰	10 ⁻¹²	10 ⁻¹⁴	10 ⁻¹⁶	10 ⁻¹⁸		
1	A. D.....	4/4*	3/4	1/4	0/4	0/4	0/4	...	...	...	10 ^{-5.0}	10 ^{-11.0}
	A. R.....	4/4	2/4	1/4	0/4	0/4	0/4	...	...	...	10 ^{-4.40}	10 ^{-12.00}
	A. Q.....	4/4	4/4	1/4	0/4	0/4	0/4	...	...	...	10 ^{-4.84}	10 ^{-13.16}
	M. F.....	3/4	3/4	0/4	0/4	0/4	0/4	...	...	...	10 ^{-4.75}	10 ^{-12.25}
2	J. M.....	4/4	3/4	0/4	0/4	0/4	0/4	...	...	...	10 ^{-4.67}	10 ^{-11.33}
	P. Ch.....	4/4	4/4	1/4	0/4	0/4	0/4	...	...	...	10 ^{-5.33}	10 ^{-11.67}
	A. L.....	4/4	1/4	0/4	0/4	0/4	0/4	...	...	...	10 ^{-5.23}	10 ^{-12.67}
3	C. P.....	4/4	4/4	0/4	0/4	0/4	0/4	...	...	...	10 ^{-5.0}	10 ^{-11.0}
	N. M.....	4/4	2/4	0/4	0/4	0/4	0/4	...	...	...	10 ^{-4.0}	10 ^{-12.0}
	M. C.....	4/4	3/4	1/4	0/4	0/4	0/4	...	...	...	10 ^{-5.0}	10 ^{-11.0}
4	W. R.....	...	4/4	4/4	4/4	4/4	4/4	4/4	4/4	0/4	10 ⁻¹⁶	0
	A. G.....	...	4/4	4/4	4/4	4/4	4/4	4/4	4/4	0/4	10 ⁻¹⁶	0
	E. F.....	...	4/4	4/4	4/4	4/4	4/4	...	...	...	10 ⁻¹²	0
5	N. G.....	...	4/4	4/4	4/4	4/4	4/4	4/4	4/4	...	10 ⁻¹⁶	0
	E. O.....	...	4/4	4/4	4/4	4/4	4/4	3/4	4/4	0/4	10 ⁻¹⁶	0
	J. S.....	...	4/4	4/4	4/4	3/4	3/4	4/4	4/4	0/4	10 ⁻¹⁶	0

* The denominator signifies the number of mice injected and the numerator the number of mice which died.

† Fifty per cent endpoints estimated according to the method of Reed and Muench (Am. J. Hyg. 27: 493 [May] 1938).

‡ Ratio between the titer of virus mixed with each of the immune serums and the titer of virus mixed with control serum.

inoculated with the virus forty-eight hours previously. From the supernatant part of this suspension, drawn off after a centrifugation at 1,000 revolutions per minute for ten minutes, serial hundredfold dilutions in saline solution were prepared, and to 0.5 cc. of each dilution the same amount of the serums on test was added, making a series of final dilutions of the virus ranging from 10⁻² to 10⁻¹⁸. After an incubation for two hours at 37 C. in a water bath, the serum-virus mixtures were inoculated intracerebrally (0.03 cc.) into 4 week old Swiss white mice. Surviving mice were discarded after fourteen days of observation.

EXPERIMENTAL

The 16 persons on test may be divided into five groups according to the degree of contact they have had with the encephalomyelitis virus.

Group 1 consists of 4 employees of the institute, all of them having been in continual contact with the virus for some years: three of them (A. D., A. R., A. Q.) have been elaborating the chick embryo encephalomyelitis vaccine for two and five years respectively, and the fourth one, a caretaker, has for more than five years handled mice, guinea pigs and rabbits inoculated with encephalomyelitis virus.

employees of the institute and the others are peasants living in the vicinity of the institute, where some cases of equine encephalomyelitis among horses have been observed.

The details and results of the neutralization tests are presented in the accompanying table. It is apparent that the serums of all persons who at any time worked with the encephalomyelitis virus contained specific neutralizing antibodies (the 10 persons of groups 1, 2 and 3). The amount of antibodies in the serums was sufficient to reduce the titer of the virus, which, in the presence of normal control serums, has been 10⁻¹⁰, to 10⁻⁵-10^{-3.33}, indicating an exceedingly high neutralization index of 10⁻¹¹-10^{-12.67}. On the other hand, control serums of persons who never came into contact with encephalomyelitic material did not even show any traces of neutralizing antibodies, because the titer of the fresh virus in saline solution, which has been 10⁻¹⁸, dropped, after contact with normal serums, to only 10⁻¹⁶. This may be easily explained by the attenuation of the virus by the warmth of the water bath.

The experiment further demonstrated that the amount of antibodies was practically equal in the serums of persons who have been working systematically and for a long time with the virus (groups 1 and 2) as well

as in the serums of persons who only occasionally came into contact with the virus (group 3). Of still greater interest is the fact that even a long period of contact with the encephalomyelitic vaccine, i. e. with inactive virus, was able to promote a considerable immune response in the person concerned (N. M., group 3).

The cases of group 2 give evidence that antibodies, once present, persist in the serum for a long time in the same intensity. Serums of persons who have not worked with the virus for the last two and three and one-half years showed the same virus neutralizing power as did the serums of persons who have been working with the virus uninterruptedly for various years (group 1). However, it is noteworthy that the serum of P. Ch., who stopped working with the virus three and one-half years ago, has also had the least—though still considerable—amount of neutralizing antibodies of all the serums on test, and a neutralization index of 10^{-10} .⁶⁷

The persons whose serums demonstrated high neutralizing antibody titers have in their records no evidence of any special clinical manifestations which could lead to a suspicion that they were suffering from a disease caused by the encephalomyelitis virus. Nevertheless, in view of recent reports by Casals and his collaborators¹⁷ and by Lennette and Koprowski,¹⁹ the possibility must be considered that our subjects did suffer from an encephalomyelitis infection which, owing to its mild course, has been confused with a current infection of grip. Only in 1 of our persons (M. C., group 3) was there some evidence that he might have become infected when performing the postmortem of 13 encephalomyelitic horses. His illness began a few days after the last autopsy with a severe headache, a high fever and nausea, which, according to his statement, persisted for three to four days. He was bled on the fifth day of the illness, when the headache disappeared and the temperature returned to normal. Though no virus could be isolated from his blood, his serum contained neutralizing antibodies for the Venezuelan encephalomyelitis virus. The neutralization index was higher than 10^{-3} but its exact limit was not determined at the time.

COMMENT

The recent communications by Casals and his collaborators¹⁷ and by Lennette and Koprowski¹⁹ concerning 10 cases of disease in man caused by the Venezuelan encephalomyelitis virus bring clear evidence of the high infectivity of this virus for man. However, the course of this infection in human beings appears to be much milder than that produced by the western and eastern encephalomyelitis virus. This mild course of the illness is probably the reason why, up to now, there have not been any reports on proved cases of encephalomyelitis in man from the areas where the Venezuelan virus is prevalent in horses. A striking feature of the present study is the high neutralizing antibody titers of the positive serums. They neutralized approximately 100 billion minimum lethal doses of the Venezuelan virus. The serums tested by Casals and his collaborators and by Lennette and Koprowski showed a lower, though still very considerable, neutralizing power. This amount of antibodies is certainly higher than that generally produced in human serums due to an infection with both the western and the eastern virus. Though this is probably a consequence of special immunologic characters of the Venezuelan virus, the influence of the very high titer of the Venezuelan virus in this phe-

nomenon must also be considered, since, in a recent study, we²⁰ were able to verify that, the higher the titer of the virus, the greater the number of lethal doses withstood by immunized mice; and it is precisely the Venezuelan virus which has the highest titer of the three viruses mentioned. On the other hand, it must be said that when we, on previous occasions, tried to produce an encephalomyelitis immune serum by means of repeated inoculations, even of the active virus V-1938 into donkeys, the serum had only a very low neutralizing antibody titer.²¹

As to the way in which people working with encephalomyelitic material become infected, there seem to exist various possibilities. The respiratory route of infection, described by Lennette and Koprowski, is one of them, and our case of M. F., an animal caretaker, could also be due to it. However, our neutralization test brings evidence that the transmission of the disease, or at least the promotion of an immune response, by contact, is also possible. This opinion could be corroborated also by the observation of Howitt,²² who tested the serums of a group of 9 persons who had been in contact with frank cases of human encephalitis. Seven of them had antibodies for the western virus. According to Howitt, several of these persons undoubtedly had an abortive type of encephalitis with slight fever that may have been responsible for the production of antibodies.

The interval after the onset of illness in which neutralizing antibodies appear seems to be very short.²² In the serum of our case M. C., antibodies were found as early as the fifth day of the supposed illness. According to Howitt,²² neutralizing antibodies for the western strain are found during the first two weeks after the onset of illness in 100 per cent.

Antibodies persist in the serum for a long time after the infection. We found high neutralizing antibody titers in the serums of 3 persons who did not have any contact with the encephalomyelitis virus for two and three and one-half years respectively. Howitt²² also demonstrated the presence of antibodies for the western virus at least two years after the onset of illness.

Finally, the question arises from the present study whether neutralizing antibodies for the encephalomyelitis virus in the serum of a person may be considered to be a proof that the person had some time before suffered from a disease caused by this virus or, on the contrary, that they are at least in some instances the consequences of a kind of immunization due to the repeated contact with encephalomyelitic materials. This possibility, mentioned also by Beard and Finkelstein,²⁴ is certainly corroborated by N. M., whose serum, though he has been working exclusively with the formaldehyde treated inactive virus-containing encephalomyelitis vaccine, had as high a neutralizing antibody titer as the serums of persons working with active virus. We do suspect, however, that the serums of the majority of our persons became positive as the result of a previous infection, because, with the exception of N. M., who during three years never failed to

20 Kubéš, V., Gallia, F. and Diamante, A., to be published.
21 Kubéš, V., and Diamante, A.: *Estudios de inmunidad cruzada entre el virus de la encefalomyelitis equina de Venezuela y los virus encefalomyelíticos norteamericanos este y oeste y el Argentino*, Bol. d. Inst. invest. vet. 1: 47-76 (July) 1942.
22 Howitt, B. F.: *The Complement Fixation Test with Human Sera Against the Viruses of St. Louis Encephalitis and Equine Encephalomyelitis*, J. Immunol. 47: 293-302 (Oct.) 1943.
23 Casals, J., Curnen and Thomas, T. Lennette and Koprowski.
24 Beard, J. W., and Finkelstein, H.: Data presented at the meeting of the American Association of Immunologists, Toronto, April 26, 1937.

come to work, all of them had to stay at home at one time or another on account of some grip infection. Several persons also remember very strong muscle pains, and 1 of them even a pronounced somnolence for three days. This mild and inconspicuous course of the illness caused by the Venezuelan virus is doubtless also the main reason for the lack of any communication about encephalomyelitis in man from areas where the disease is enzootic in equines.

In view of the work of Casals and his collaborators, of Lennette and Koprowski and of the present study, it may be said that the Venezuelan equine encephalomyelitis strain differs from both the western and the eastern virus not only by its immunologic character but also by a distinct pathogenicity for man.

SUMMARY

1. The serums of 3 laboratory workers and 1 caretaker of experimental animals, who have now been working for from two to five years with encephalomyelitic material, showed high neutralizing antibody titers (average neutralization index $10^{4.73}$).
2. The serums of 3 laboratory workers who worked previously with the virus but by now have not had any contact with encephalomyelitic material for two and three and one-half years had an equally high virus neutralizing power (average neutralization index $10^{4.44}$).
3. The same neutralization index showed also the serum of one person who worked only on very few occasions with the virus and of another who performed the dissection of 13 encephalomyelitic horses.
4. One laboratory worker, who is bottling the inactive virus-containing encephalomyelitic vaccine and who never came into contact with the active virus, also developed a high amount of neutralizing antibodies (neutralization index $10^{4.0}$).
5. It is possible that all the persons who have been working with the encephalomyelitis virus and who remember transitory illness with grippal symptoms have suffered from an encephalomyelitic infection.
6. Six persons (3 from the institute and 3 from outside) who have never had any contact with encephalomyelitic material showed no neutralizing antibodies at all.
7. Though the Venezuelan equine encephalomyelitis virus seems to be highly infective to man by direct contact, the illness is much milder than that produced by the western and eastern encephalomyelitic virus.

First Institution for the Epileptic.—The first institution specifically for epileptics was established at Gallipolis, Ohio, in 1890 and opened in 1893. The idea of the separation of buildings into many different groups was thoroughly carried out at the Craig Colony in western New York, to create for appreciative patients homes where they could be comfortable and have suitable occupation for life. Similar institutions have been developed at Woodstock, Ontario; Abilene, Texas, and Skillman, New Jersey. Numerous institutions care for both epileptic and mentally deficient groups: for instance, Sonoma, California; Mansfield Depot, Connecticut; Glenwood, Iowa, Lynchburg, Virginia, and Cambridge, Minnesota. Such institutions usually set aside several buildings for groups of convulsive patients and distribute those who are mentally deficient but without convulsive disorders in other wards or buildings. Such sharp segregation is not always practiced, and classification by temperament and interest seems sometimes more successful than classification by psychiatric diagnosis.—*One Hundred Years of American Psychiatry*, New York, Columbia University Press, 1944.

EXPERIENCES UNDER THE MEDICAL EXAMINER SYSTEM

IN A SEMIRURAL COUNTY OF THE STATE
OF MARYLAND

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On June 1, 1939 a law was enacted in the state of Maryland removing the investigation of unexpected, unusual and violent deaths from the hands of the coroner and a lay jury and setting up instead a more modern system, creating the office of chief medical examiner and providing for medical deputies in each county.

Responsibility for the kinds of cases formerly handled by the coroner was transferred to the newly created office of medical examiner. The deputy medical examiner, as he is termed in the counties outside Baltimore, is appointed by the Maryland Post Mortem Commission from a list submitted by his county medical society. He is charged under the new law to view the body of the deceased at the scene of death and to examine the circumstances leading to death "when any person shall die as a result of violence, or by suicide, or by casualty, or suddenly when in apparent health, or when unattended by a physician, or in any suspicious manner." The medical examiner may then sign the death certificate or he may order a medicolegal autopsy for further information, investigation to be made by himself, the county or city police or all three.

It is obvious that close cooperation of the medical examiner with the state's attorney (district attorney) is essential. In fact, in the majority of instances when postmortem examinations are considered necessary they are authorized after consultation with, or at the suggestion of, the prosecuting authority of the county. However, the law setting up the machinery for the medical examiner's system in this state gives its official representatives the right to order autopsies independently of the state's attorney. A permit from the next of kin of the deceased is not required. Thus autopsies have been ordered by the medical examiner himself in cases with a medicolegal angle when the state's attorney was unavailable and in cases involving other than purely legal problems such as compensation insurance and public health.

Autopsies are performed in Washington County by the director of the local hospital laboratory, a certified pathologist with six years' special full time training in legal medicine. He was appointed by the chief medical examiner of the state of Maryland at the suggestion of the local county medical society. The pathologist is not called on to be present at the preliminary investigation, which takes place at the scene of death. His duties are confined to postmortem examinations and to testifying when called on before the grand and petit juries.

The medical examiner's findings are reported on a special form provided by the main office in Baltimore. In addition to personal data of the deceased and final diagnosis (cause of death as stated in the death certificate), a brief summary is written concerning the circumstances leading up to, or factors contributing to, the death and the manner in which it occurred. At

the end of each month a report summarizing and classifying that month's cases is filed with the central office. Should the necessity arise, advice and assistance from the chief medical examiner are always available. Photographs taken at the scene of death by the medical examiner (photography is not police routine in Washington County) have proved of graphic assistance in reconstructing cases at a later date. A number of prints have been admitted as evidence in court and have been instrumental in confirming otherwise debatable testimony.

In any case in which an autopsy is performed, the law requires that the detailed findings be filed with the main office in Baltimore. Copies of the report are sent to the local deputy medical examiner and to the state's attorney. The subsequent microscopic reports are usually forwarded only to the two first named medical officers.

However, should the microscopic investigation show results not anticipated at gross inspection and should the findings have some practical bearing on pending legal procedures, the state's attorney also is informed and the significance of the newly found evidence explained. If chemical analysis is desired (poison cases, alcoholism), the organs, blood, urine and stomach contents are sent (if possible by special messenger provided by the sheriff's office) to the chief medical examiner's laboratory in Baltimore.¹ The unavoidable expenses connected with toxicologic investigations have so far limited their application to a few cases only. Whenever ordered, an authorization from the state's attorney is procured in advance.

Fees of both medical examiner and pathologist are set by law. The former receives \$15 per case, the latter \$25 for each autopsy plus a small stenographic charge. Expenses are defrayed by the county. Compared with the former system the expenses under the new law

was 32,491 to 36,347. These figures may have shifted somewhat in favor of the city (Hagerstown) owing to a war boom (airplane factories). The population is fairly stable and according to the 1940 census was 97 per cent American born; 2.5 per cent represented the colored population of the whole county and 39 per cent that of Hagerstown proper.

TABLE 2.—Medical Examiner's Autopsies in Washington County, Md. (Five Years' Survey)

Year	Fatal Auto- mobile Acci- dents	Hom- icides	Natural Deaths	Other Fatal Acci- dents	Rape, Abor- tion, Still birth	Poison Ings; Varia	Total
1939 (7 mo.)....	2	3	1	5	3	1	16
1940.....	1	3	1	4	3	1	14
1941.....	1	2	..	6	2	..	12
1942.....	1	1	1	6	4	1	14
1943.....	..	1	2	9	2	..	17
1944 (6 mo.)....	2	1	..	3	3	1	10
Total (5 yr.) ..	7	11	5	33	17	7	83

Because of the fairly even distribution of rural and city population and also because of the stability of the native white group, the county has figured as a sample in several surveys of the National Institute of Health (cancer frequency, tuberculosis in school children, dental caries and others).

The 420 cases listed in table 1, seen in five years, allowed for 83 autopsies. By special order of the medical examiner, and at the expense of the county, postmortem examinations have been performed forty-nine times (11.7 per cent). However, included are 2 cases in which the costs have been defrayed by insurance carriers.

In cooperation with the medical examiner, but without his express order and without remuneration from the county, autopsies have been undertaken in 34 additional instances (8.1 per cent). Among the latter group have been listed 25 patients who died at the local hospital. Although medical examiner's cases *sensu strictiori* (victims of accidents, violence, and so on), the autopsies were done more in the course of the stepped up program of the hospital for a high percentage of autopsies than for any other reason. In this category, if possible, permits have been secured from the next of kin. Included in this group also are patients dying at the hospital with no relative available for an autopsy permit. Here the medical examiner has been instrumental in authorizing a post-mortem examination which would otherwise not have been feasible.

Eleven additional cases, although dying as patients of, and in, the hospital have been counted among the first group of 49 "ordered" postmortem examinations. These patients succumbed mostly in consequence of some event which led to court or insurance procedure after a short or long stay at the hospital.

The medicolegal autopsies just classified and enumerated represent, in their distribution among the different listings, a sample such as may easily be encountered in similar surveys in counties like Washington County, Md., as well as in large cities. From a purely criminologic point of view the 83 cases did not reveal any outstanding or unusual evidence except in 1 instance: A youth of 18 suffered severe lacerations of the right temple region in a motor-car accident. His deep and profusely bleeding wounds had to be sutured. Toward the end of the surgical intervention the patient suddenly vomited

TABLE 1.—Medical Examiner's Cases in Washington County, Md. (Five Years' Survey)

Year	Fatal Auto- mobile Acci- dents	Hom- icides	Natural Deaths	Other Fatal Acci- dents	Rape and Abor- tion	Poison- ings; Varia	Total Cases	Autop- sies
1939 (7 mo.)	6	4	4	27	6	..	48	16
1940	22	14	2	45	10	..	103	14
1941	15	13	1	36	18	1	84	32
1942	14	11	3	24	20	..	72	14
1943	15	13	4	31	17	..	83	17
1944 (5 mo.)	7	6	..	10	6	..	30	10
Total (5 yr.)	79	61	14	173	86	1	420	83

Fatal automobile accidents: Any fatal injury resulting from an automobile, as being killed by a drunken driver or head on collisions.

Homicides: Include several cases of homicide with subsequent suicide of the culprit.

Other fatal accidents: Besides every kind of railroad accident, deaths occurring in factory, farm and home work, electricity.

Poisonings: Here are listed some (by no means all) of the acute alcoholic intoxications, suspected poisonings and 1 case of phosphorus poisoning (rat poison swallowed by a child).

constitute a considerable saving for the county in spite of a much greater case load.

The figures of the following survey can be evaluated only when correlated with certain data about the county itself. Washington County, Md., contains 462 square miles and comprises mountainous fringes surrounding a very fertile farm valley region. According to the 1940 U. S. census it had 68,838 inhabitants. The distribution between rural and city population in 1940

1. Maldeis, H. J. Post Mortem Examination in Cases of Suspected Poisoning, *Am J. Clin. Path.* 13: 165 169 (April) 1943

(intravenous anesthesia had been given) aspirated stomach contents and died a few hours later. The autopsy established as the cause of death suffocation due to aspiration. Besides the external lacerations there were no fractures of the skull and no brain lesions. Since the driver of the car in which the deceased was a passenger had been accused of manslaughter, the postmortem findings raised an important legal point of utmost significance for the defendant.

The cause of death could be sufficiently unraveled in all except 2 instances. One was a suicidal death in the neighboring prison farm where even chemical investigation did not disclose what kind of drug or chemical had been employed. However, other circumstantial evidence and the lack of any striking anatomic (gross and microscopic) findings seemed to confirm the assumption of a suicidal death. In the other case (sudden unexplained demise of a man age 20 after a debauch in *venere*) a mechanism of the kind recently suggested by Wilhelm Raab² was at least considered possible, again in the presence of irrelevant anatomic and toxicologic findings.

From the standpoint of pathologic anatomy the group of "death from natural causes" represents the most interesting source of gross and microscopic material, with considerable diagnostic variation and occasional unforeseen surprises.

COMMENT

It is not our purpose in this report to compare the medical examiner's system of Maryland with that of other states where similar legislation has been in force for many years (e. g. Massachusetts, New Jersey and New York). Here, as in these other states, one of the primary aims of the new setup is to contribute to an adequate pursuit of justice, either by providing evidence of crime or violence in cases with fatal outcome or by ruling out foul play in others.

In contradistinction to the former coroner's system, no political motives govern the selection of the medical examiner, who must be a duly licensed physician in good standing.

Since the incumbrance of the coroner's jury has been completely eliminated, the procedures have become less complicated. Investigations are undertaken not only whenever special circumstances of police interest call for them but also, and in much greater frequency, under routine conditions clearly defined by the law creating the medical examiner's office. This means that instead of a few conspicuous criminal cases, a large number of less obvious but nevertheless doubtful occurrences of sudden, unexplained deaths are investigated by an independent nonpolitical officer acting for the state.

The fact that not all the really pertinent cases have been investigated makes it necessary to mention certain weaknesses of the system. Occasionally physicians, more in the outlying rural districts of the county than in Hagerstown itself, have signed death certificates for persons who according to the definitions of the law fall clearly into the medical examiner's realm. It is understandable that in the case of the sudden, unexpected death of an old man or woman known to have suffered from attacks of precordial pain the local physician prefers to sign the certificate. If the deceased happens to have been a former patient of his, the medical examiner certainly will authorize him to do so (and a considerable number of cases are

handled this way, free of any charge for the county). However, there have been instances in which younger persons and children who died after a very short course of unexplained illness without medical attention have, contrary to law, not been reported. Here, usually, after the medical examiner finally had been informed of the circumstances and started his investigation, the body had already been embalmed and exhibited to friends and relatives. It is difficult, and feasible only for very cogent reasons, to order an autopsy under these circumstances in a small village community. Some difficulty too has been experienced in convincing the general public that the rumors of mutilation committed on the body of a deceased person are without foundation. It has been found best to describe the procedure as a surgical operation and to assure interested persons that all incisions are carefully sutured after completion of the "operation." Intercession by the family physician has been of great value in securing an autopsy permit from an otherwise adamant family. Although experiences of this kind have been the exception and have occurred mainly through ignorance of the law, they are cited in order to show some of the loopholes of the new system. The medical profession has been on the whole not only cooperative but also seemingly appreciative of the separation of this type of investigation from the hands of unqualified laymen.

The medical examiner's usefulness to the county depends to a great extent on his relation with the state's attorney and his staff. In fact, it stands and falls with it. No difficulties in this respect were encountered here through the change in law. The prosecuting attorney acknowledged the quasi-independent position of the medical examiner and made every effort to utilize the newly available source of additional expert information on medicolegal questions. The fact that the large group of so-called sudden deaths from natural causes was closely scrutinized by alert medical officers contributed much to mutual esteem.

Since in Maryland the tenure of office of a state's attorney ends after two years and since he cannot be nominated for consecutive reelection, the medical examiner in his work has to deal with several incumbents of the prosecuting attorney's office. This, as well as points of common interests with possible ensuing friction, make tact, discretion and reserve an absolute must in the discharge of the medical examiner's duties, the more so since he deals also with a somewhat fluctuating group of persons who serve as sheriffs, deputy sheriffs and county and city investigators (detectives). Without being in any clearly defined official relationship to the officers of these law enforcement agencies, the medical examiner needs their wholehearted cooperation. Without it all his endeavors to render good service to the public would be frustrated. Fortunately, there has been no lack of zeal, understanding and helpfulness among the group of men to whom these special duties were delegated directly by the electorate or by their respective superiors in office.

The medicolegal autopsy turned out to be the most controversial subject of the new law. There were no objections against postmortem examinations in cases of obvious homicide or manslaughter. But it took some time until the public, the law enforcing agencies and the county commissioners came to the conclusion that in having these autopsies performed a distinct service was rendered to the community. In a special meeting before the board of county commis-

2. Raab, W.: Sudden Death of a Young Athlete with an Excessive Concentration of an Epinephrine-like Substance in the Heart Muscle, *Arch. Path.* 36: 383 (Oct.) 1943.

sioners, the medical examiner and the legal pathologist were given an opportunity to expound their opinions. They were able to explain why, for example, in sudden deaths in railroad yards or in municipal buildings or in certain cases of accidental death, postmortem findings would forestall a future lawsuit with eventually much greater expense to the county. The two physicians were supported in their reasoning by the state's attorney and the board's own legal adviser. A further point of interest to the county commissioners was the proof presented from available data not only that a number of examinations had been done for the county without charge but that in other cases bills had been presented only after the necropsies had established beyond doubt that there was public interest at stake.

The difficulties just described were to be expected when the new medical examiner's law was enacted in 1939. As a matter of fact the anticipation of these and similar obstacles on the part of the law makers and medical advisers was one of the main reasons that considerable leeway was left to the local deputy medical examiners. Because of the elasticity of interpretation permitted by the law, it has been possible to proceed slowly and to accustom the authorities and the general public gradually to the new situation without major conflict.

The discussion of the autopsy problem has to consider, in addition to the points touched on, the practical value to the public of postmortem examinations. No words need be wasted on cases of unequivocal criminal violence. Less well recognized by the local authorities, however, is the eventual importance of an autopsy in every case of accidental death. In cases of this type, if the cause of death can be established beyond any reasonable doubt, tedious and costly litigation at a later date may be avoided. When the argument of accident due to some primary bodily ailment (cerebral hemorrhage, coronary occlusion or others) may come up, brought to the fore in honest conviction or in hope of monetary gain, a necropsy performed shortly after death acts as an effective deterrent.

In the period covered by this report the medical examiner has been instrumental several times in contributing to the elucidation of certain public health puzzles. One autopsy of an old man who died shortly after admission to the hospital revealed as cause of death the presence of typhoid (perforated ulcer of the ileum with secondary peritonitis). This led to the discovery of a small, hitherto unknown, endemic focus of typhoid in an outlying district of the county. Another necropsy, performed on a young infant, called attention of the health authorities to a likewise limited endemic outbreak of meningococcic meningitis. The little girl showed a typical Waterhouse-Friderichsen syndrome as it has been again recently described by Martland³ in its medicolegal implications.

In a third case a sudden death was found to have been due to a foudroyant laryngeal diphtheria in one of the poorest hill sections of the county. The child, one of a family of eight, was never seen or treated by a physician. A spread of the diphtheria was prevented.

In the fourth case, a Negro aged 40 died suddenly in the county jail, where he was awaiting removal to a mental institution after having been confined originally on a count of disorderly conduct. Necropsy revealed that in spite of a negative serologic reaction

of the blood his fatal illness turned out to have been dementia paralytica with *Treponema pallidum* demonstrable in Levaditi stained brain sections.

SUMMARY.

1. In a semirural county of Maryland, 420 medical examiners' cases have been handled during the first five years period of a new medical examiner's system introduced in 1939.
2. Under this new, nonpolitical, setup a much greater case load has been carried at lower expenses for the county than under the previous, outdated coroner's system.
3. In 83 instances autopsies have been performed. These were ordered by the deputy medical examiner 49 times, whereas 34 postmortem examinations have been done with his consent but without compensation on the part of the county.
4. The exact cause of death could be established in all but 2 cases.
5. Among the 83 autopsies, 1 case of criminologic importance, due to unusual circumstances, and 3 cases of epidemiologic (public health) significance have been encountered and brought to a satisfactory solution.

BLAST CONCUSSION INJURY

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Two hundred persons exposed to the effects of air blast produced by high explosives have been studied. Adequate clinical facilities were available and the injuries were not complicated by flying splinters, so that an unusual opportunity was presented to study the effects of blast concussion on human beings. Complete follow-up studies have been possible.

A correlation of the position of the men in relation to the explosive charge with the injuries sustained is of considerable interest. As was to be anticipated, the closer the individual to the explosion, the greater the injury. This was not always true, however, for bizarre effects were noted. One fortunate man who was standing between 2 men fatally injured, 1 of whom was found 42 feet from his original position, escaped uninjured except for perforations of the tympanic membranes. Another man was thrown 15 feet and turned completely around in midair and yet had minor injuries. This capriciousness of injury was evident time and again. One person would be seriously injured and his neighbor with seemingly identical protection, or lack of it, would escape without damage. One soldier was resting his chin on the shoulder of another in front of him who was literally "blown to bits" and escaped with a fractured maxilla. It was evident that those standing in the front row were most seriously injured, and one row of men between the soldiers and the blast afforded protection except for the tympanic membrane. But again there were exceptions, for one man standing in the second row 30 feet from the explosion was unconscious for one hour, while his companions were hardly injured. These phenomena are presumably related to two characteristics of blast waves. In the first place, near the source the blast wave is irregular in outline¹ with many "eddies" in its periphery, and

3. Martland, H. S.: Fulminating Meningococcic Infection with Bilateral Massive Adrenal Hemorrhage (The Waterhouse-Friderichsen Syndrome), *Arch. Path.* 37: 147 (Feb.) 1944.

1. Discussion on Problem of Blast Injuries, *Proc. Roy. Soc. Med.* 34: 171-192, 1941.

a man sheltered in such an eddy might escape serious damage. In the second place, blast waves, like sound waves, are reflected from surface to surface and are subject to reinforcement or neutralization on meeting a similar wave in the same or opposite phase.² And this neutralization may explain why 1 man is seriously injured and another near him is not. Indeed, in Madrid destruction of alternate houses on opposite sides of the street was not uncommon. Since pressures vary as the square or cube of the distance from the source, this difference in critical pressures may be represented by a few feet.³

The most striking clinical feature of those who survived was a pronounced decrease in psychomotor activity.⁴ These patients were listless and apathetic, and they seemed overcome with fatigue and lassitude. They were content to stay in one place, made no conversation among themselves, and made but few demands on their attendants. There was no complaining or crying out with pain; they did not request water or sedation. Verily they were men "stunned and stupefied."

Vital functions were depressed; shock was universal and was associated with pallor and sweating. Blood pressure readings of 80 to 90 mm. of mercury systolic and 40 to 50 diastolic were the rule. This hypotension responded promptly to the intravenous administration of plasma and had entirely disappeared in every instance within twelve hours of admission. To our surprise the pulse rate in the first twelve hours was less than 60 per minute in 26 per cent, less than 70 in 75 per cent and less than 80 in 92 per cent. In addition to this unanticipated bradycardia the peripheral pulse was of a striking character, soft, collapsing and readily compressible.⁵ It was so distinctive as to be remarked on by several different medical officers. Electrocardiography showed low voltage, a flattened QRS complex and normal sinus rhythm. Arrhythmia or fibrillation was not present.

The initial temperature on admission was slightly subnormal in the majority of the patients. A secondary rise of 1 or 2 degrees in from four to twelve hours was observed in the more seriously injured, and this fever persisted for one or two days. The maximum temperature observed was 102.4 F. in the patient with abdominal distention. This fever appeared within eight hours of injury and subsided in the course of three days. The red, white and differential blood counts were within the normal range. The respiratory rate on admission was low. Slow, shallow, sighing respiration seemed characteristic but in certain individuals seemed modified by pain, and these "gasped" for breath.

Pulmonary lesions have been reported constantly in experimental animals and in human beings exposed to blast.⁶ Deep hemorrhages adjacent to the bronchi and lacerations along the lines of the ribs, and "red hepatization" associated with cyanosis, dyspnea, cough, hemoptysis and roentgen ray evidence of patchy consolidation have been prominent features of the reports of others.⁷ Pneumonia has been a common

sequel.⁸ Chest conditions in our patients were less severe. Eight patients complained of mild pain in the chest lasting more than twenty-four hours, and 1 patient had severe pain in the chest lasting for ten days. No fractures of the ribs could be demonstrated by roentgen ray, and the pain was more diffuse in nature than that usually associated with such fractures. Only 1 patient exhibited the rusty sputum and patchy consolidation reported by others. Pulmonary edema and secondary cardiorespiratory embarrassment did not develop, which may have been due to the entire absence of exertion.⁸

In experimental animals exposed to blast, hemorrhage in the subserosa of the small or large intestine in patches or annular bands has been noted. And numerous reports of intra-abdominal injury associated with immersion blast injury have appeared.⁹ But in these patients abdominal pain was not frequent in those who survived. Of those who died, abdominal evisceration was noted in 3. Severe abdominal pain was encountered in 5 instances, and mild abdominal pain in several additional patients. It was colicky and gripping in nature and associated with hyperactive peristalsis in 4 of these 5. This pain subsided in a few hours except in the patient most severely injured, who had all the signs and symptoms associated with an adynamic ileus. He exhibited diffuse abdominal tenderness, distention and absence of peristaltic sounds. Because of associated injuries, laparotomy was not feasible, and the patient's symptoms subsided in four or five days on conservative treatment. Perforation of the intestine in patients who are not killed instantly by air concussion blast must be very rare,¹⁰ and since surgery for such patients is hazardous in patients suffering from air concussion injury, laparotomy should be undertaken only with reluctance.¹¹ Let us repeat, this is very different from the conditions which pertain in immersion blast injury.

Unconsciousness of short duration was experienced by less than 20 per cent of the nonfatally injured. Two patients were unconscious for periods of three and four hours, respectively, without residual effects. Tremor, such as that sometimes associated with intense emotion, was common at the time of admission in conscious patients. One patient showed convulsive twitchings, while unconscious, and later recovered completely. In 2 of the 3 patients who died within thirty minutes after the explosion without external evidence of injury, generalized convulsions were noted. They were not unlike those sometimes associated with anoxia during anesthesia or too many "G's." Memory for events leading up to and after their period of unconsciousness was excellent. Residual paralysis did not occur. The presence or absence of permanent cerebral damage cannot be evaluated, for no psychologic studies of these individuals prior to their injury is available. Certain of these men have continued to have complaints for which no organic basis can be found, but their number and variety is no different from that encountered in other units of similar size and composition. Change in mood and psychomotor activity evident immediately after the blast did not persist.

2. Sutherland, G. A.: The Physics of Blast, *Lancet* 2: 641-642, 1940.
3. Fulton, J. F.: Blast and Concussion in Present War, New England J. Med. 226: 1-8, 1942. Logan, D. D.: Detonation of High Explosives in Shell and Bomb, and Its Effects, *Brit. M. J.* 2: 864-867, 1939.

4. Stewart, O. W.; Russell, C. K., and Cone, W. V.: Injury to the Central Nervous System by Blast, *Lancet* 1: 172-174, 1941. Wilson and Tunbridge.¹⁰

5. Krohn, P. L.; Whitteridge, D., and Zuckerman, S.: Physiological Effects of Blast, *Lancet* 1: 252-258, 1942.

6. Gates, R.: Roentgen Findings in Immersion Blast Injuries, *U. S. Nav. M. Bull.* 41: 12-19, 1943.

7. Wilson, J. V.: Pathology of Closed Injuries of the Chest, *Brit. M. J.* 1: 470-474, 1943. Gates.⁶

8. Hadfield, G., and Christie, R. V.: A Case of Pulmonary Concussion (Blast) Due to High Explosives, *Brit. M. J.* 1: 77-78, 1941.

9. Palma, J.: Immersion Blast Injuries, *ibid.* 41: 3-8, 1943. McMullin.¹¹

10. Wilson, J. V., and Tunbridge, R. E.: Pathological Findings in a Series of Blast Injuries, *ibid.* 1: 257-261, 1943.

11. McMullin, J. A.: Foreword to symposium on Immersion Blast Injuries, *U. S. Nav. M. Bull.* 41: 1-2, 1943. O'Reilly, J. N., and Gloyne, S. R.: Blast Injury of the Lungs, *Brit. M. J.* 2: 423-428, 1941.

Because of the character of the soil, multiple foreign bodies (sand) in the skin were almost universal; and for the same reason injury by fragments was absent. In most instances the particles of sand were so deeply embedded that their removal was impossible even by the most vigorous scrubbing.

Injury to eyes and ears was the most common injury encountered. Tinnitus, deafness and pain referred to the ears was almost universal immediately after the explosion. The pain and tinnitus subsided in a few hours in most instances, but partial deafness persisted. The more severe immediate deafness was associated with hemotympanum rather than perforation of the drum. In the patients with actual hemorrhage into the ear drum, usually in the region of the umbo and the handle of the malleus, there was almost complete deafness. Recovery in this group was rapid with but little impairment after two weeks.

Thirty-two patients had perforation of the ear drum (14 bilateral, 12 right ear only, 6 left ear only) varying in size from small slits to complete loss of the entire tympanic membrane and ossicles, which showed no signs of healing. It was interesting to note that there was no wax in the external auditory canals of those having perforation of the ear drums. This evidence has been used by others to show that wax has protective value. It seems to us, however, that it may simply indicate that the damage is done by the short concussive blast (0.006 second) and the detritus is removed by the longer suction wave (0.03 second). We were unable to find parts of the tympanic membrane or middle ear ossicles by the most careful examination in those patients with complete loss of both structures.

The smaller perforations, including several of more than 2 millimeters in diameter, healed rapidly. Three patients in whom slightly more than one third of the tympanic membrane was destroyed healed almost completely. Those patients in whom more than one half of the ear drum had been destroyed showed no tendency toward healing.

There was no relationship between the size of the perforation and the amount of hearing loss either immediately after the accident or five months later when a loss of approximately one third for whispered voice and a greater loss for the notes above 4,096 double vibrations on the audiogram was noted. In the 3 patients with persistent otitis media there was greater impairment in hearing. In no instance was the loss so great as to prevent the performance of military duty.

With 3 exceptions the middle ears remained unaffected during the more than six months they have been under observation, and these dried up following systemic administration of sulfathiazole. One patient had a preexisting chronic otitis media which apparently was aggravated by the blast. There was no mastoiditis in this group of patients, which we attribute to the absence of local treatment within the ears and the absence of insufflation. Bleeding from the middle ear did not occur. No patient showed signs of labyrinthine involvement such as vertigo, nystagmus, past pointing or actual falling.

Ocular symptoms were equally widespread. Almost all persons exposed to the blast complained of photophobia, blepharitis and lacrimation of varying severity. This was of limited duration with the exception of 1 patient, who continues to complain of photophobia and blepharitis after six months. One patient developed haziness of the corneal epithelium a few days after

injury, which disappeared in a week. In addition to those patients whose eyes were injured by blast concussion alone there were 31 patients with foreign bodies in the eyes. They were lodged in the corneal epithelium and conjunctiva in 20 patients, deep in the cornea in 9 patients and in the anterior lens capsule in 2 patients. Three patients exhibited subconjunctival hemorrhage without foreign bodies. There were no patients in this group with hemorrhage into the anterior or posterior chambers or in the retrobulbar region. There were no patients with detachment of the retina.

Six months after injury 1 patient has light perception only, 1 patient is blind in one eye and 1 patient has a posterior synechia with pronounced impairment of vision in that eye. These patients suffered from ulceration of the cornea which eventually healed. Nine men developed corneal opacities of varying size.

That tremendous damage can be accomplished alone by blast can scarcely be questioned. Death was instantaneous in most instances in which it occurred and was usually due to multiple injuries. In only 3 instances was it unaccompanied by single or multiple fractures and/or evisceration of a body cavity.

The prognosis in those not killed more or less instantaneously is probably more directly related to the treatment given than to any other single factor. The underlying pathologic lesion is probably associated with hemorrhage into various tissues and any activity, even that of transporting a patient, seems to increase this hemorrhage and lessen the likelihood of survival. Indeed, it is believed that hemorrhage into the pulmonary parenchyma may continue for more than two days, and transfer of even seemingly well patients during this interval is hazardous.⁸ All patients in this group survived who reached the hospital alive or, to put it differently, all patients in this group who survived the effect of blast concussion by sixty minutes were saved.

Treatment is symptomatic and is largely governed by individual indications. Plasma may be used in liberal amounts for every patient with signs of shock and repeated as long as hypotension persists. Oxygen was likewise given freely to those patients who were either in shock or who had pain in the chest or respiratory embarrassment. Sulfonamide drugs were administered prophylactically to all patients with perforations of the ear drums or persistent pain in the chest.

SUMMARY

1. Detailed observations and complete follow-up studies were made on a group of 200 men exposed to "blast" due to the detonation of high explosives.

2. Those nearest the explosion were, in general, most seriously injured, but capricious choice of victim was noticeable.

3. Death was almost instantaneous when it occurred and was due to multiple injuries in most instances.

4. Those patients who survived sixty minutes recovered.

5. Damage to the ears by blast and to the eyes from foreign bodies occurred in a high percentage of those who recovered. Periods of unconsciousness, convulsions, chest pain, pulmonary complications and abdominal distress were minimal in this group. Intestinal perforation did not occur. Shock, bradycardia, hypotension, decreased psychomotor activity and slow respiration were the outstanding clinical signs and symptoms of this group.

Clinical Notes, Suggestions and New Instruments

CONTACT DERMATITIS FROM PENICILLIN

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HERBERT RATTNER, M.D.
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In November 1943 a penicillin section was established at the Gardiner General Hospital. The medical officer in charge, who undertook to prepare the various solutions as well as to administer the drug to patients, noted shortly thereafter that he had a mild marginal blepharitis and conjunctivitis with some blurring of vision on reading. Glasses were prescribed for the condition, but the blepharitis persisted and soon there developed a dermatitis which began on the bridge of the nose and spread to involve adjacent areas of the forehead and the central oval of the face. The eruption had the characteristics of a relatively acute dermatitis due to contact with an irritant, and its source was thought to be in the plastic frames of the newly acquired glasses.

These glasses were discarded, but the dermatitis became progressively worse despite topical treatment with bland preparations, and in the course of a few weeks similar eczematous lesions appeared on the dorsal surfaces of the third, fourth and fifth fingers of the left hand and the distal third of the penis. The latter was swollen, edematous, reddened and excoriated, and in areas the dermatitis was moist. On Jan. 15, 1944 the actual handling of the penicillin was delegated to an assistant, and in the course of the following two weeks the lesions had completely disappeared. Some time later, when the services of the assistant were not available for a period of forty-eight hours, it again became necessary for the first officer to handle the penicillin solutions, and within twenty-four hours there was a recurrence of the dermatitis affecting the same areas.

When this attack had completely subsided, a closed patch test was performed on the arm with the penicillin in the form in which it was used. The patch was removed after forty-eight hours, and at seventy-two hours there was a strongly positive reaction with itching, erythema and vesiculation. The site showed residual hyperpigmentation even four weeks later.

We were informed by a firm that is producing penicillin "The mold in growing on this medium produces a number of substances in addition to penicillin, and as the purification process at present utilized results in a content of penicillin varying between 20 to 40 per cent, the remaining material consists of extractives soluble in organic solvents which occasionally produce urticaria and vary from batch to batch of the material." Therefore it seemed important to determine whether the mold itself or the medium was the source of the irritation. Patch tests were then performed, one with the medium alone and another with the penicillin as it is used, the latter to serve merely as a check on the first test. The whole product again produced a strong reaction, but there was no reaction from the medium, which consisted of corn steep liquor and a small amount of lactose. Another patch test was then performed with the purest penicillin then available, the material from which the crystalline product is made, and this too gave a slightly positive reaction. Several weeks later we obtained some of the crystalline material, and this, when dissolved in water and tested by means of a closed patch test, also gave a strongly positive erythematovesicular reaction. It was therefore concluded that the dermatitis in this case was produced by the penicillin itself.

For the past eight weeks the penicillin has been handled by three hospital corps men. All three have experienced, at times,

slight discomfort from itching of the face and penis, though they showed no evidence of dermatitis—their symptoms were discovered only after pointed interrogation. None of these men had ever before had eczema or any other disease of an allergic nature. The question was then raised as to whether the reaction was in the nature of a true allergic hypersensitivity or a "chemical irritation." There was, of course, no material available for patch test studies of a large group of normal subjects; however, penicillin has been applied frequently in the form of dressings for topical therapy on several patients, and in none of them was there any evidence of irritation of the skin from it.

SUMMARY

A case was observed of dermatitis venenata of the face and genitalia from contact with penicillin. This is apparently the first such case to be reported.

1660 East Hyde Park Boulevard—25 East Washington Street.

HOW TO AVOID FLARE-UPS OF PEPTIC ULCER

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A man of 50 who had always been well discovered one day that the man who for twenty years had been his brother-in-law, his closest friend and his business partner had been falsifying the books in order to steal from him. All that night he lay awake in great mental distress, and next day he had a big gastric hemorrhage. Another man, a physician, after examining a woman's stomach with a roentgenoscope, discovered that he had used a current of 60 milliamperes instead of the usual 3 milliamperes. After lying awake all night worrying over the expected burn and resultant damage suit he found himself almost incapacitated by the pain of a bad ulcer. Another man, when a violent strike in his factory distressed him terribly, had a big hemorrhage. A woman who adored her peppery little daughter-in-law one day inadvertently offended her and brought down on her head a storm of abuse which nearly killed her. Next day a long-healed ulcer flared up and perforated. A woman who heard that her soldier husband had just been killed at the front promptly had a hemorrhage.

Many such experiences will doubtless spring to the mind of every busy physician who reads these words, all illustrating what is well known today, namely that the patient with ulcer is most in danger of a flare-up or a catastrophe during the hours immediately following a distressing emotional storm. *This is the time when, probably with an increase in the acid gastric secretion, and perhaps a decrease in the alkaline and neutralizing secretions that flow into the duodenum, or a combination of these two processes, the acidity of the contents of the first portion of the duodenum becomes so high that an ulcer either develops or, if present already, promptly becomes greatly deepened.* As Wolf and Wolff showed in their patient with a gastric fistula, psychic strain can produce turgescence of the gastric mucosa with a great increase in the acidity of the gastric juice.

Under the circumstances it would seem obvious that the time to start strenuous treatment should always be immediately after a psychic strain has come. Why should one wait until an ulcer has formed or, if present, has eaten its way into a blood vessel or clear through the wall of the intestine? Why wait for disaster when it might perhaps be headed off and prevented?

Furthermore, since it now appears probable that most of the injury to the duodenal mucosa that is wrought by acid comes during those hours between 10 p. m. and 3 a. m., when, in the person with an ulcer temperament, the stomach tends to be empty of food but full of highly acid and unbuffered gastric juice, would it not be logical the evening after a nervous crisis has occurred to begin with either a constant antacid drip or the taking of food and antacids every one or two hours from dinner time on to 2 or 3 a. m.? The patient can easily set an alarm clock to wake himself perhaps at midnight and again at 2 a. m.

From the Gardiner General Hospital, Chicago.
Dr. Rattner is volunteer civilian consultant in dermatology to the Gardiner General Hospital.

From the Division of Medicine, Mayo Clinic.

For some years now I have been asking my patients with ulcer to do just this, and already some feel that the treatment has tided them over some bad crises in their lives and kept them from having a flare-up of their ulcer. Dozens of physicians with a tractable type of ulcer have told me that during the intervals in which their life goes peacefully they do not seem to need much dieting or other treatment.

SUMMARY

It is suggested that when a patient who has had an ulcer goes through an emotional crisis he should immediately start taking food every hour or two. He shouldn't wait for the expected flare-up or hemorrhage or perforation. The extra feedings are probably most needed between the hours of 10 p. m. and 3 a. m.

SCHISTOSOMIASIS MANSONI

MICHAEL P. DI GIACOMO, M.D., AND ROBERT A. MAYER, M.D.
Passed Assistant Surgeons (R), United States Public Health Service
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Schistosomiasis *mansoni* infection is an acute or chronic disease caused by the blood fluke *Schistosoma mansoni*. The adult worms live and lay their eggs in the veins draining the colon, the rectum and occasionally the bladder. When the ova are deposited in fresh water the egg hatches and the embryo (miracidium) enters a snail, the intermediate host (genus *Planorbis* or *Australorbis*), where it undergoes asexual development. The free swimming larvae (*cercariae*) emerge from the molluscan host into fresh water and infect man by penetration of the skin during swimming, wading, bathing or using infected water in showers.¹

The diagnosis is established only when the characteristic lateral-spined ova are found in the stool. Occasionally they are present in both urine and stool.

Antimony and arsenical compounds are used in the treatment of Schistosomiasis *mansoni*. The trivalent antimony compound neoantimosan (Fuadin) is one of the drugs of choice because of its ease of administration and infrequent reactions. Potassium or sodium antimony tartrate is administered when satisfactory results are not achieved after the use of fuadin.²

REPORT OF CASES

CASE 1.—An Arab aged 30 (from Yemen) was admitted to the U. S. Marine Hospital, Ellis Island, N. Y., on Sept. 29, 1943 complaining of weakness, loss of weight, poor appetite, constipation, and blood and mucus in the stools.

The onset of his complaints began about one year prior to admission, when he had abdominal cramps and a small amount of blood and mucus in the stools. About six months prior to admission constipation started, and he had burning on urination and blood in the urine, the blood being expressed at the end of micturition. About five months prior to admission the patient suddenly felt itchy and had a generalized skin eruption, which he described as resembling hives. The eruption lasted for about two days and then disappeared. A week later it recurred and for the next two months it appeared intermittently. The patient stated that he had not had any previous illnesses except an attack of chills and fever lasting about a month, which occurred five years previously, while he was living in Yemen.

Physical examination at the time of admission was normal except for malnutrition. The patient was 64 inches (163 cm.) tall and weighed 112 pounds (51 Kg.). No rectal polyps or hemorrhoids were present. Several small, irregularly shaped, bleeding, ulcerated areas above the distal rectal haustration

were seen on proctoscopy. No ova or parasites were found in scrapings taken from the ulcerated areas. Repeated stool examinations showed the presence of ova of *Schistosoma mansoni* and *Trichuris trichiura*. Centrifuged specimens of urine did not contain any ova or parasites. The red blood cell count was 4,920,000, with 85 per cent hemoglobin (Sahli), and the white blood cell count was 5,400, with 65 per cent neutrophils, 30 per cent lymphocytes and 5 per cent eosinophils. The Wassermann and Kahn reactions were negative, and the sedimentation rate (Cutler method) was 6 mm. in one hour. The total blood protein was 6.2 per cent, with an albumin of 3.5 per cent and globulin of 2.69 per cent, yielding an albumin-globulin ratio of 1.3. A roentgenogram of the chest was normal.

Treatment consisted of a full course of ten intramuscular injections of fuadin and 1.0 Gm. of hexylresorcinol was given orally for his *Trichuris trichiura*. This was combined with general supportive measures including a high caloric, high vitamin diet. Using zinc flotation technic, no ova of *Schistosoma mansoni* or *Trichuris trichiura* could be found after the fourth injection of fuadin, and repeated examinations remained negative. The patient's appetite improved, he gained strength, and there was no more blood or mucus in the stools. At the time of discharge, on Dec. 14, 1943, one month after discontinuing treatment, he had gained 3 pounds (1.3 Kg.).

CASE 2.—An Arab aged 30 (from Yemen), who has lived in the United States for the past twenty years, was admitted to the U. S. Marine Hospital, Ellis Island, N. Y., on Oct. 25, 1943 complaining of low back pains, weakness, and some loss of weight for the past two years. Treatment at several hospitals for lumbosacral strain, consisting of alcohol injections in the lumbar region and short wave diathermy to the back, was given, but he failed to improve. The patient stated that he had always been well previous to the onset of his illness.

Physical examination at the time of admission was normal, except for moderate tenderness elicited on pressure over the lumbosacral region and over both iliac crests posteriorly. The patient was 66 inches (167 cm.) tall and weighed 132 pounds (60 Kg.). The red blood cell count was 4,110,000, with 88 per cent hemoglobin (Sahli), and the white blood cell count was 4,200, with 58 per cent lymphocytes, 34 per cent neutrophils and 8 per cent eosinophils. The Wassermann and Kahn reactions were negative and the sedimentation rate (Cutler method) was 24 mm. in one hour. Roentgenograms of the spine, long bones and chest were normal. Ova of *Schistosoma mansoni* were found in the stool on three successive days. Centrifuged specimens of urine did not contain any ova or parasites.

The patient was given a full course of fuadin intramuscularly. With the zinc flotation technic, ova could not be found after the fifth injection and the stools remained negative.

At the time of discharge on Jan. 3, 1944, one month after discontinuing treatment, the patient had gained 13 pounds (5.9 Kg.), his backache had almost completely subsided, and he felt very much improved. The red blood cell count was 4,810,000, with 86 per cent hemoglobin (Sahli), and the white blood cell count was 7,200, with 70 per cent neutrophils, 27 per cent lymphocytes and 3 per cent eosinophils. The sedimentation rate (Cutler method) was 18 mm. in one hour.

COMMENT

These 2 cases of Schistosomiasis *mansoni* demonstrate the insidiousness of the disease. This point was well demonstrated by the second patient, who had been living in this country for twenty years. His infection began, in all probability, prior to his entry into the United States.

Physicians should be constantly on the lookout for parasitic diseases, especially in all persons returning from endemic areas. It is therefore advisable for every one who has been in any country where parasitic diseases exist to have a stool examination on returning to this country. The stools should always be obtained following the administration of a saline purge. The examination should be made regardless of whether or not symptoms of a parasitic infection are present.

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2. Manson-Bahr, P.: Manson's Tropical Disease, ed. 10, London, Cassell & Co., Ltd., 1935, pp. 659-685. De Rivas, D.: Parasites, in Persol, G. M., and others: The Cyclopedica of Medicine, Surgery and Specialties, Philadelphia, F. A. Davis Company, 1939, vol. 11, pp. 308-316.

Special Article

AMERICAN HEALTH RESORTS

THE PLACE OF HEALTH RESORTS IN REHABILITATION FOLLOW- ING INJURIES

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It is undoubtedly a fact that we are now facing the most stupendous problem in rehabilitation which has ever existed in the history of the world.¹

The number of war injuries sustained in the army and navy and also in industrial and other civilian pursuits will be the largest our country has ever known. Adequate utilization of our national health resorts will assist materially in solving our rehabilitation problems. But rehabilitation of those disabled by the war must follow a broad general plan in which use of our health resorts can play only a limited, although extremely important, part.

Fortunately, considerable thought is already being given to postwar rehabilitation. President Roosevelt² in a radio address on July 28, 1943 said: "We must this time have plans ready—instead of waiting to do a hasty, inefficient and ill considered job at the last moment." He outlined a six point program, which included as one item "improved and liberalized provisions for hospitalization, rehabilitation and medical care of disabled members of the armed forces and merchant marine." Former President Herbert Hoover³ has said "I have always felt it of paramount concern to rehabilitate human beings; to return a man or woman to productive citizenry is an urgent need and a service of the highest order to the social and economic welfare of our country."

General Fred W. Rankin⁴ in his presidential address to the American Medical Association said "Consideration is already being given to postwar planning even though it may seem little warranted at this time. It should be realized, however, that only by such long range charting can the confusion and disorder which characterize immediate postwar reconstruction periods be averted." During the last war, as hinted by President Roosevelt, some of our rehabilitation planning was hasty and inefficient. This led Johnstone⁵ to comment "Rehabilitation of our armed forces has been attempted following all previous wars but has never been successful." General Frank T. Hines,⁶ administrator of the Veterans Administration, has explained that after the last war "veterans were advised to undertake a training program for an objective which could not be obtained."

It is evident that disabled persons must be restored as nearly to normal as possible before they are returned to civilian occupations. They cannot attain suitable

adjustment in normal activities without first receiving adequate medical reconstruction. Now is the time for us to determine just exactly what is the place of health resorts and other rehabilitation agencies in this reconstruction of the injured. Health resorts often will be found to be ideal locations for providing satisfactory "rehabilitation and medical care" in order to return injured persons to "productive citizenry."

GENERAL PLAN FOR REHABILITATION

In order to determine the exact sphere of usefulness of treatment in a health resort as part of a broad plan of total rehabilitation, it is necessary to outline such a plan. Recently I¹ pointed out that our problem begins when a soldier or sailor is first wounded and ends only when he is finally completely adjusted in a suitable position in civil life. Similarly, the civilian war worker who is injured must be carried through several stages of reconstruction before he is finally completely rehabilitated. I have concluded¹ that there are, roughly, nine steps to be taken in a complete plan for total rehabilitation. These are:

1. Immediate emergency care.
2. Secondary emergency care.
3. Care during transportation
4. General hospital care.
5. Care in rehabilitation centers.
6. Vocational guidance.
7. Vocational training.
8. Selective placement.
9. Industrial rehabilitation.

It is during steps 5, 6 and 7 that health resorts will be utilized most frequently. They should serve chiefly as rehabilitation centers, and during the reconstruction period vocational guidance and vocational training often can be inaugurated. In some instances the health resort can fit also into steps 4 and 8 of the overall rehabilitation plan. At times general hospitals can be located at health resorts in order that patients may be placed in a healthful environment at the earliest possible moment. Also at times selective placement can be arranged at the health resort before the patient establishes a permanent home in civil life. It is obvious that in many instances it will be advisable for the disabled person to be placed suitably before he leaves the rehabilitation center. In the overall plan of rehabilitation which we must develop it is evident that health resorts may have a wide sphere of usefulness.

BRITISH PLANS FOR REHABILITATION

In the present war in England there has been promulgated the Tomlinson plan.⁷ This is essentially an elaboration of the medical rehabilitation program developed at Shepherd's Bush in 1916 by Sir Robert Jones.⁸ In an appendix to the Tomlinson report appears a "rehabilitation scheme." In this scheme are listed the various types of disablement, the types of institutions in which these conditions should be treated, the suggested remedial treatment, the probable resulting medical condition, the further provisions which are needed, and also the type of center or institution in which final rehabilitation should be completed. It will be seen on consulting the accompanying table that physical therapy, occupational therapy, physical training, vocational training centers, sheltered workshops and reconditioning centers (with medical supervision) are recommended

From the Section on Physical Medicine, Mayo Clinic.
1. Krusen, F. H. "Wartime Physical Rehabilitation" Part II, Proc Staff Meet., Mayo Clin. 18: 344-352 (Sept 22) 1943.
2. Roosevelt, F. D.: Radio address as reported in the Minneapolis Star Journal, July 28, 1943.
3. Hoover, Herbert, quoted by Frampton, M. E., at a hearing on vocational rehabilitation and training before the Committee on Education, House of Representatives, 78th Congress, 1st session, Washington, D. C., Government Printing Office, 1943, number 82938, p. 26.
4. Rankin, F. W.: "Postwar Medicine," Minnesota Med 26: 601-603 (July) 1943.
5. Johnstone, R. T.: "Industrial Participation in the Rehabilitation of the War Wounded," in Brown, W. B., and Runes, D. D. "Rehabilitation of the War Injured," New York, Philosophical Library, 1943, pp. 541-547.
6. Hines, F. T.: Testimony at the hearing on vocational rehabilitation and training, p. 14.

7. The Tomlinson Report, editorial, Lancet 1: 113 (Jan. 23) 1943.
8. Jones, Robert, quoted by Watson, Frederick: "The life of Sir Robert Jones," London, Hodder & Stoughton, Ltd., 1934.

for many types of disablement. These forms of therapy usually can be provided best at an established health resort.

The actual experiences of the British Royal Air Force with rehabilitation centers of the health resort

Royal Air Force, that they will be quoted at some length. Watson Jones mentioned an air gunner who remained in a civilian orthopedic hospital for treatment of a torn and displaced semilunar cartilage for ten months and who was still totally incapacitated even

REHABILITATION SCHEME FOR VARIOUS TYPES OF DISABLEMENT
(BEING THE APPENDIX TO THE TOMLINSON REPORT)

I.—Type of disablement.	II.—Type of institution in which treated.	III.—Remedial treatment.	IV.—Resulting medical condition.	V.—Further provision needed.	VI.—Type of centre or institution.
1. Fracture or other physical injury.	Orthopedic centre. Fracture unit. General hospital.	Surgical or orthopedic. Occupational therapy. Remedial exercises and physiotherapy. Hospital workshops.	(a) Complete restoration. (b) Partial restoration—but allowing return to ordinary (c) ment in a new occupation—after training if necessary. (d) Permanent and serious disability causing a grave handicap to employment and, in some cases, preventing employment under ordinary conditions.	(a) In some cases reconditioning course. (b) Ditto. Vocational training—preceded in some cases by a reconditioning course. (d) Specialised vocational training or sheltered employment. Note.—Artificial limbs may be required for some cases under (c) and (d).	(a) Reconditioning centre. (b) Ditto. (c) Vocational training centre—after (for some cases) a preliminary course at a reconditioning centre. (d) Special training centre for ordinary employment. Institution providing sheltered employment.
2. Othersurgical conditions and the general group of medical cases.	As a rule in a general hospital. (Note.—The present provision for proper rehabilitation treatment is inadequate and should be developed.	If illness is prolonged, and especially if associated with sepsis, gradual restoration of bodily strength by physiotherapy, exercises, &c., would be essential—with special attention to the feet to prevent dropping of the arches.	(a) The majority should have complete restoration of function.	(a) In some cases a reconditioning course. (b) Convalescent treatment—followed in some cases by a reconditioning course—under medical supervision. Note.—Artificial limbs may be required for some cases.	(a) Reconditioning centre. (b) Reconditioning centre—with medical supervision.
3. Cardiac cases.	General hospital. (Note.—Special hospitals are required for the further treatment of some of the cases in this group.)	If the valves are badly affected, little chance of restoration. Where the heart muscle only is involved, restoration to fair, if not full, working capacity can be achieved—by rest over a long period and then graduated exercises.	(a) Residual disability preventing heavy physical activity but permitting light and sedentary work. (b) Serious disability preventing employment under ordinary conditions.	(a) Special care in selecting employment—with vocational training as required. (b) Sheltered employment.	(a) Vocational training centre as necessary. (b) Institution providing sheltered employment. Note.—Medical supervision will be necessary under both (a) and (b).
4. Pulmonary tuberculosis.	Sanatorium. Tuberculosis hospital. Sanatorium-hospital. Home for advanced cases.	Rest, hygiene, diet. Collapse therapy (including major surgery). Chemotherapy. Occupational therapy.	(a) Restoration—permitting employment under ordinary conditions. (b) Quiescence—requiring part-time or modified employment to prevent relapse. (c) Unfit for employment under ordinary conditions	(a) Care in selecting employment. (b) Special provision for part-time or modified work. (c) Sheltered employment.	(a) — (b) For some cases—special institution providing sheltered employment. (c) Special institution providing sheltered employment.
5. Blindness.	Special eye hospital. Special department of general hospital. General hospital for treatment of underlying medical condition.	Surgical (e.g., cataract removal). Optical appliances, including recent "contact lenses." General medical treatment.	(a) Restoration of good sight. (b) Restoration of limited but useful sight. (c) Blindness or its near equivalent.	(a) In some cases a reconditioning course. (b) Care in selecting employment and, for some cases, vocational training. (c) Carefully selected employment in ordinary industry, or sheltered employment.	(a) Reconditioning centre. (b) Vocational training centre as required. (c) Blind workshop or organised home worker scheme.
6. Deafness.	Special department of general hospital. General hospital for treatment of underlying medical condition.	Surgical. General medical treatment. Appliances.	(a) Improvement of hearing. (b) Defective hearing. (c) Total deafness.	(a) — (b) Training in lip reading or provision of artificial aid. (c) Training in lip reading and, for some cases, vocational training.	(a) Vocational training centre as necessary. (b) — (c) Schools or evening institutes, and, for some cases, vocational training centre.
7. Neurosis.	Neurosis centre (under E.H. scheme). Special O.P. departments of general hospitals. A few special clinics for outpatients.	Psychotherapy, with occupational therapy, physical training and workshops.	(a) Restoration—permitting return to ordinary employment. (b) Minority remain as problem employment.	(a) Careful selection of employment—with a reconditioning course for some cases. (b) Selected employment and aftercare.	(a) For some cases—reconditioning centre. (b) —
8. Psychosis.	Mental hospital—as certified or voluntary patients	Medical and psychotherapeutic treatment, with occupational therapy.	(a) Fit for ordinary employment. (b) Fit for specially selected employment. (c) Permanent disablement and unsuitable for employment.	(a) Assistance in placing, probably preceded in some cases by a reconditioning course. (b) Carefully selected employment and aftercare. (c) —	(a) Reconditioning centre for some cases. (b) — (c) —

From the London Lancet 1:119 (Jan. 23) 1943.

type have been so enthusiastically reported by Watson Jones,⁹ civilian consultant in orthopedic surgery to the

though the diagnosis had been correct, a skilful operation had been performed, there had been no surgical complication and he was receiving daily massage. He limped, "he would not cooperate" and he was depressed.

9. Jones, R. W.: Rehabilitation in Royal Air Force, Brit. M. J. 1: 403-407 (March 28) 1942.

He had been told that "the nerve to his knee had been cut." Then he was transferred to one of the orthopedic rehabilitation centers of the Royal Air Force medical service.

Watson Jones described subsequent events as follows: "He saw the sky, the sea, the open spaces. For many months he had seen only the stone walls of many corridors. His new surroundings were different: there was a lounge and a writing room, tasteful decorations and flowers, a menu which was varied and excellent. an atmosphere of well being and contentment. After a few days he smiled. There was sometimes a sparkle in his eye. Within a week he sensed the spirit of optimism. It grew upon him and he was reassured. His difficulties were explained and he was taught special exercises. He learned to walk then to run. He became an enthusiast and worked hard. He worked in the gym, played on the fields, swam in the pool, cycled on the track. Time raced past, for he was busy. He attended lectures, played billiards and went to concerts. He became bronzed and fit. He laughed and was full of the joy of life. In seven weeks he returned to his unit and to full duty. He forgot about the 'nerve in his knee.'

"Ten months—total incapacity; seven weeks—full recovery."

What better argument could one present for the importance of the health resort in rehabilitation of the disabled? Watson Jones has stressed the fact that this is not an isolated case but is "typical of the experience of many victims of bone and joint injury."

AMERICAN PLANS FOR REHABILITATION

The British have had more time to develop rehabilitation plans and also have had more military and civilian casualties than we have had in the United States. In the course of the last war there was organized in the Office of the Surgeon General of the United States Army a Division of Physical Reconstruction. This division functioned so successfully that Cotton¹⁰ was led to comment "During the war our returning soldiers were given a care in convalescence that was wiser and broader than we have been accustomed to and was carried out with an extraordinarily high average of efficiency." But with the signing of the armistice in 1918 this reconstruction program gradually deteriorated and the final rehabilitation of many of our soldiers was not accomplished.

Unfortunately, physicians frequently have considered that their responsibility ended when the patient was dismissed from the general hospital and they have failed to carry through with the medical supervision of the last five steps of the complete nine step rehabilitation plan which was mentioned earlier in this article. Notably did we fail to establish enough well organized rehabilitation centers in which to provide physical therapy, occupational therapy, limited work therapy, sheltered employment, remedial exercises, sports and recreation similar to the modern Royal Air Force center in which the air gunner mentioned by Watson-Jones convalesced so rapidly.

In this war it is already apparent that we are doing much better. Although there is still a great deal to be accomplished, it is now evident that we are gradually developing all phases of a general rehabilitation plan.

Starting with step 4 of the nine step rehabilitation plan, general hospital care, we find that army physicians

are thinking about the provision of proper exercises in early convalescence. For example Stephens,¹¹ intrigued by the work of von Quincke¹² and Smitt,¹³ who urged early employment of exercises for hospitalized patients in the course of the last war, has stressed the need for exercise in the early stages of orthopedic convalescence. In order to encourage patients to progress with their exercises, Stephens has recommended Lieut. Col. Howard Rusk's plan for grading all cases in five categories. The patient then obtains benefit and a psychic stimulus by progressing from one grade to another. These five grades or classes are as follows: Class 5—Patients who are completely bedfast but not in critical condition. Class 4—Patients who are capable of being out of bed but are still on crutches and cannot leave the ward. Class 3—Patients who are out of bed and going to meals but not yet ready for rigorous training. Class 2—Patients who are out of bed and about, walking without assistance and who are nearly ready for duty. Class 1—Patients who are capable of exercising for at least one hour twice a day. Stephens concluded that there is need for these early physical exercises in order "to shorten the recovery period, improve morale and lessen the danger of permanent disability."

It is extremely pleasing to observe that in this war our army, navy and the Veterans Administration are establishing rehabilitation centers at many health resorts in which the exercises started in general hospitals according to Stephens' plan can be continued and in which all other forms of rehabilitation procedure can be provided.

Army Medical Centers at Health Resorts.—The United States Army Medical Corps has established, among others, hospitals at the following resorts: (1) White Sulphur Springs, W. Va., Ashford General Hospital; (2) Colorado Springs, Colo., Station Hospital, Camp Carson; (3) Denver, Fitzsimons General Hospital; (4) Hot Springs, Ark., Army and Navy General Hospital; (5) Battle Creek, Mich., Percy Jones General Hospital; (6) Swannanoa (near Asheville), N. C., Moore General Hospital; (7) Tucson, Ariz., Station Hospital, Davis-Monthan Airfield, and (8) Miami, Fla., Miami Army Air Force Hospital.

Navy Medical Centers at Health Resorts.—The Bureau of Medicine and Surgery of the United States Navy has established, among others, hospitals at the following resorts: (1) Asheville, N. C., (2) Yosemite, Calif., (3) Glenwood Springs, Colo., and (4) Sun Valley, Idaho.

Veterans Administration Centers at Health Resorts.—It is understood that the Veterans Administration is contemplating the establishment of hospitals at such health resorts as (1) Saratoga Springs, N. Y., (2) Hot Springs, Salt Lake, Utah, (3) Hot Springs, S. D., (4) Bay Pines, Fla., (5) Mineral Springs, Texas and (6) Excelsior Springs, Mo.

Representative Rehabilitation Plans Developing at Army and Navy Hospitals.—It has been my privilege to train in methods of physical rehabilitation a considerable number of the army and navy officers who are mentioned in the following paragraphs. Thus I have been able to follow with great interest the rehabilitation programs that some of these fine officers are developing. I wish that it was possible to describe all these develop-

11. Stephens, J. T.: Unpublished data.

12. von Quincke, H.: Bewegungsübungen bei Nachbehandlung innerer Krankheiten, München, med. Wchnschr. 66: 1339-1340 (Nov.) 1919.

13. Smitt, Willem: Die Bedeutung der manuellen Krankengymnastik, München med. Wchnschr. 67: 292-293 (March 5) 1920.

10. Cotton, F. J.: The Need for War Trained Physiotherapy Experts in the Hospital, Mod. Hosp. 14: 101-102 (Feb.) 1920.

ments, but there is space for only a few. The rehabilitation work at Army and Navy General Hospital at Hot Springs, Ark., at Moore General Hospital, at Ashford General Hospital, at Fitzsimons General Hospital and at the Naval Convalescent Hospital at Glenwood Springs is particularly interesting and perhaps typifies



Fig 1.—Convalescent patients at Ashford General Hospital pitching horseshoes for reconditioning and recreation.

the progress in rehabilitation of the disabled which is being made at various governmental hospitals in health resorts.

Army and Navy General Hospital, Hot Springs, Ark.: The Army and Navy Hospital is an old established military hospital which has long been conducted as a rehabilitation center. It has a well organized physical therapy section which has been under direct medical supervision for many years. The last three army medical officers who have directed this department are Major Dwight Lawson, Major A. E. White and Capt. Jerome Lee. The hospital has a physical therapy department, a fever therapy department, a hydrotherapeutic pool and a heliotherapy deck. In these departments qualified technicians administer various forms of treatment under the supervision of the medical chief of the section. Before the outbreak of the present war, many chronic diseases were treated at this hospital.¹⁴ An excellent program of rehabilitation is in operation.

Moore General Hospital, Swannanoa, N. C.: The Moore General Hospital is one of the newer army hos-

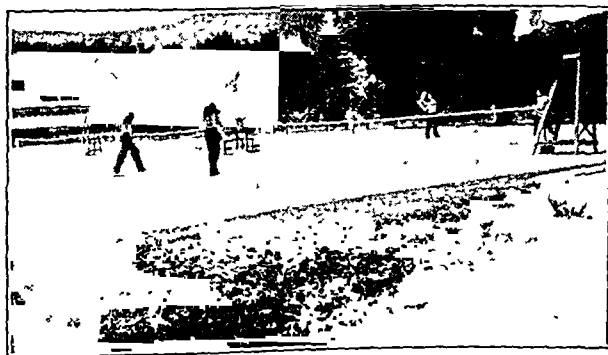


Fig 2.—Convalescent patients playing tennis at Ashford General Hospital

pitals established in the beautiful mountain health resort district of western North Carolina near Asheville. The altitude is 2,700 feet above sea level. Major Earl Rothermel is in charge of physical rehabilitation at this hospital.¹⁵ A complete physical therapy department has

been organized and it is being utilized chiefly for the rehabilitation of acute injuries.

Ashford General Hospital, White Sulphur Springs, W. Va.: Just as is true of the Moore General Hospital, so the Ashford General Hospital is situated in a delightful mountainous resort region. The famous old Greenbrier Hotel has been remodeled to accommodate this hospital, and the magnificent grounds, including tennis courts, golf courses and mountain trails, are available for the convalescent soldiers.

Capt. Carl Levenson is in charge of physical rehabilitation at this hospital. The program for rehabilitation of the disabled at Ashford General Hospital is notable because Colonel Beck, the commanding officer, has established a special convalescent program. This plan is under the direction of a special service officer, Lieut. Robert E. Strzelczyk, who is a graduate in physical education and also a registered physical therapy technician.¹⁶

An individualized exercise program is provided for each patient according to his physical capabilities. Most of the convalescents are finally discharged back to duty. A sports program is provided, including fishing, hiking over the many trails, horseshoe pitching (fig. 1), tennis (fig. 2), croquet, calisthenics (fig. 3), throwing the



Fig 3.—Convalescent patients in calisthenics class at Ashford General Hospital.

medicine ball (fig. 4), golf (fig. 5), badminton (fig. 6), archery (fig. 7), volley ball and wood carving.¹⁷ With such an environment and with such a well organized program there is small wonder that our disabled soldiers are rapidly being rehabilitated at this fine institution.

Fitzsimons General Hospital, Denver: The Fitzsimons General Hospital is one of the older permanent army general hospitals. It has recently been housed in a very large and commodious new building (fig. 8). Situated at a high altitude, Denver is well known as a health resort region.

Major O. L. Huddleston¹⁸ is in charge of physical rehabilitation at this hospital. Just as the Ashford General Hospital is notable for its convalescent exercise program, so is the Fitzsimons General Hospital distinguished for the excellent convalescent ward program which has been developed by the commanding officer, General Quade, on the recommendation of Major Huddleston. These plans might well be copied by other governmental and civilian rehabilitation centers.

16 Col. Clyde M. Beck, commanding officer at the Ashford General Hospital, has recently written me as follows: "From my experience in the last war, and as a medical officer since that time, I feel that one of the greatest steps which has been taken in this war has been the effort directed toward the rehabilitation of the injured soldiers. I firmly believe that the health resort centers which are being used by the Army are playing an ever increasing part in this program."

17 Seeley, Sam. Personal communication to the author.

18 Huddleston, O. L. Personal communication to the author.

14 White, A. E.: Personal communication to the author.
15. Rothermel, E. W.: Personal communication to the author.

The convalescent ward program has been incorporated in the therapeutic plan of the physical therapy department. To begin with, Capt. John Naugle, a medical officer who had been specially trained in physical therapy, was selected as the ward officer. The administration was placed under the physical therapy department. Patients assigned to this convalescent ward no longer report to their original wards except for weekly reexamination. There is no nursing service associated with the ward. The personnel in the ward consists of enlisted men exclusively. The medical officer is assisted in the management and care of patients by several sergeants.

Convalescent care of these patients includes drill, calisthenics and gymnastic sports such as volley ball, basketball and football signal practice. The convalescent patients who require physical therapy report regularly to the physical therapy clinic for treatment. The therapeutic program is coordinated so that patients are kept busy most of the day.

When patients are assigned to the convalescent ward program they are no longer under liberal hospital regulations but under strict military discipline. Surprisingly they prefer this strict supervision and regimentation to



Fig 4—Convalescent patients throwing the medicine ball at Ashford General Hospital

the liberal and somewhat relaxed discipline of the ordinary hospital ward. Most of the patients were in the surgical service and their morale improved materially when they were transferred to the convalescent ward program. Interestingly, the patients on this program have exhibited a decided increase in the rate of progress toward recovery over the rate achieved when they were receiving only physical therapy. It is proposed to coordinate this convalescent ward plan with occupational therapy and work therapy.¹⁸ This is the type of program which undoubtedly will tend to improve morale and speed recovery.

Naval Convalescent Hospital, Glenwood Springs, Colo. (fig. 9): In the course of the last war the Medical Corps of the United States Navy did not need to develop an extensive convalescent program but, with the increased number of naval casualties in this war, the need for naval rehabilitation centers has become evident. It is very gratifying to note that the Bureau of Medicine and Surgery of the navy is aware of this need and has taken immediate steps to make satisfactory provisions for it. One of the most interesting and most complete programs for rehabilitation of the disabled sailor is being developed at Glenwood Springs. This plan is of especial interest because the natural resources of this health resort are being utilized to the fullest extent.

The program is being developed by the physical rehabilitation officer, Lieut. Glenn Drewyer, a physician with special training in physical medicine, under the direction of the commanding officer, Captain McDermott. During a period of six months of intensive training in physical medicine, Lieutenant Drewyer



Fig 5—Convalescent patients playing golf at Ashford General Hospital.

worked out a complete rehabilitation scheme for injured sailors. It is extremely gratifying to find that he is now being given the opportunity to develop this plan in a practical manner.

Attached to the hospital is "the world's largest mineral water swimming pool," which is 650 feet long by 100 feet wide. This pool is supplied by Yampah, which is the largest hot mineral spring at the resort. The temperature of the water from this spring is 127 F., but this temperature can be modified and controlled by governing the inflow to the pool from an adjacent mountain creek. Thus there is offered a tropical water swimming pool, at an elevation of 5,740 feet above sea level, which can be utilized therapeutically the year round. This pool is being employed for underwater exercises. Another spring comes from a cave in the mountainside. The Indians used to take hot vapor baths in this cave. It was called by them "Yama Water," or medicine water. Subsequently it was enlarged to include three caves, and a building was



Fig 6—Convalescent patients playing badminton at Ashford General Hospital

placed over these. In these three caverns, water from the spring at a temperature of 140 F. circulates through troughs in the floor. The temperature of the air in the caverns varies from 102 to 110 F. and the relative humidity from 87 to 93 per cent. Thus there are provided natural fever therapy rooms at nearly ideal temperatures and humidities.

During a treatment session of twenty minutes in these caves the patient's systemic temperature will rise 2 to 3.5 degrees F. Already these caves have appeared to be of some benefit, when employed in conjunction with effleurage, in treatment for filariasis. The caves have been also used in verifying the cure of malaria. The



Fig. 7.—Convalescent patients at archery practice at Ashford General Hospital.

peripheral capillary dilatation produced by the heat of the caves apparently serves to draw into the blood stream the malarial parasites which may be lurking in the spleen, liver or other organs. Thus latent malaria may be reactivated.

In conjunction with the therapeutic pool and thermal caves an excellent physical therapy department and therapeutic gymnasium have been constructed. Also there are plans for construction of an occupational therapy department, a complete wood working shop and a leather working and a weaving shop. These will be coordinated with physical therapy, therapeutic exercise and corrective occupational therapy.

A typical day for a convalescent patient will include the following program: 7 a. m., breakfast; 7:30 to 8:30 a. m., make bed and clean locker; 8:30 a. m.,

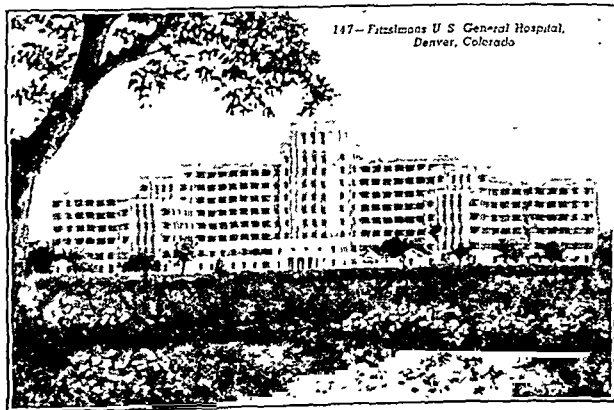


Fig. 8.—Fitzsimons General Hospital, Denver.

sick call; 9 a. m., calisthenics class; 10 a. m., swimming class; 11 a. m., treatment in department of physical medicine; 12 noon, mid-day meal; 1 to 3 p. m., light work detail; 3 to 5 p. m., organized sports assignment (sports commensurate with the patient's disability); 5 p. m., evening meal, and 6 p. m., liberty or recreational period. This program is elastic and can be modified to

fit individual needs. According to Lieutenant Drewyer this "regular program fosters habits of diligence and self respect and converts indolent and often discontented patients into happy men who soon begin to feel that they are becoming useful members of society." The program "has for its theme the development of a competitive spirit—the spirit to get well."¹⁹

One cannot help thinking that, with such splendid progress being shown in rehabilitation of the injured at army and navy hospitals, as typified by the Ashford exercise program, the Fitzsimons convalescent ward program and the Glenwood Springs general rehabilitation program, our American soldiers and sailors are going to make the same rapid progress as was shown by the Royal Air Force air gunner mentioned by Watson Jones. The Glenwood Springs project is particularly interesting and it may become, as Shepherd's Bush became in the last war, the model for other rehabilitation centers throughout the country. Similarly civilian hospitals are beginning to consider plans for the rehabilitation of injured industrial workers and civilians in other fields. For example, the Michael Reese Hospital in Chicago is contemplating the establishment of an elaborate convalescent center, which can serve the purpose mentioned. Dr. C. O. Molander²

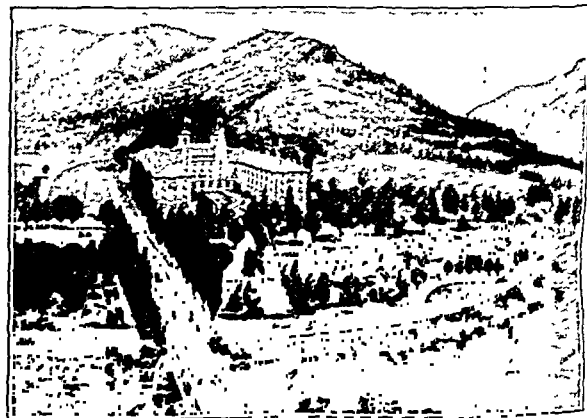


Fig. 9.—United States Naval Convalescent Hospital, Glenwood Springs, Colo.

has recently informed me about this project. It is obvious that civilian hospitals as well as military hospitals must augment their rehabilitation services greatly. It is also apparent that our American health resorts can be utilized to advantage for the rehabilitation of industrial and other civilian casualties.

FINAL COMMENT

American health resorts should play an extremely important role in rehabilitation of the disabled. As our war casualties, both military and civilian, increase it is encouraging to observe the important steps which are already being taken.

As with the related postwar educational program, if he is to cooperate, the medical rehabilitation plan must appeal to the man for whom it is provided.

It has been explained by a committee of the Association of Medical Colleges²¹ that "to be at once realistic and useful, any program must reckon with the probable

19. Drewyer, G. E.: Personal communication to the author.

20. Molander, C. O.: Personal communication to the author.

21. The Postwar Responsibilities of Liberal Education: Report of the Committee on the Restatement of the Nature and Aims of Liberal Education to the Commission on Liberal Education of the Association of American Colleges, *Am. A. Univ. Professors Bull.* 29: 412-431 (June) 1943.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 29, 1944

COUNCIL ON PHYSICAL THERAPY BECOMES COUNCIL ON PHYSICAL MEDICINE

At the nineteenth annual meeting of the Council on Physical Therapy during December 1943 a motion was passed unanimously recommending to the Board of Trustees that the name be changed to the Council on Physical Medicine. At the recent annual session of the American Medical Association in Chicago the Board of Trustees recommended to the House of Delegates, and the House of Delegates acted favorably on this recommendation; as a result, the Council on Physical Therapy has now become the Council on Physical Medicine.

The designation "physical medicine" is a more inclusive term. Physical agents are used not only for therapy but also for diagnosis. Hospital departments of physical medicine, when they employ electric tests for reaction of degeneration or perform such tests as the cold pressor test, are employing physical agents not for therapy but for diagnosis.

The Council has for some time interested itself in certain phases of occupational therapy, which is a branch of the broad field of physical medicine. The Council was informed that the American Occupational Therapy Association was anxious to have the Council give more attention to occupational therapy. Discussions between representatives of the Council and the American Occupational Therapy Association indicated that the association would welcome the inclusion of occupational therapy under a Council on Physical Medicine.

Under the following definition for physical medicine, the entire field can be covered by a Council on Physical Medicine: Physical medicine includes the employment of the physical and other effective properties of light, heat, cold, water, electricity, massage, manipulation, exercise and mechanical devices for physical and occupational therapy in the diagnosis and treatment of disease. The Council believed that it would be wise to appoint a special subcommittee of five physicians interested in occupational therapy who could help to bring

this phase of therapy more fully under direct medical supervision.

Finally there is definite precedent for the use of the term "physical medicine," which has long been considered the most acceptable term by our British colleagues. The Conjoint Board of the Royal College of Physicians and the Royal College of Surgeons has just instituted a diploma in physical medicine.

With its new name the Council on Physical Medicine will continue to function as it has always functioned but will devote additional attention to problems of occupational therapy.

THE CELL THEORY IN PATHOLOGY

The manner in which the cell doctrine of Schleiden and Schwann was adapted to an interpretation of disease is interesting.¹ The idea that elementary cells, globules, vesicles or fibers may be united to form tissues was suggested in antiquity. The value of Schwann's theory depended on the morphologic and functional importance attributed to the nucleus. Unfortunately, coupled with it was the erroneous belief that cells originated within a formless blastema by a process of "crystallization"—actually a spontaneous generation.

The cell concept was introduced into the study of disease during the two decades beginning with the publication of Schwann's researches in 1838 and closing with Virchow's "Die Cellularpathologie," printed in 1858. At that time such histologic methods as are now employed were undeveloped. Tissues were placed in salt or sugar solutions, teased apart and examined in the fresh state. The only reagent in common use was acetic acid, which increased the prominence of the cell nuclei. The fixation, embedding, sectioning and staining technics paramount in modern microscopic studies were unknown. An appreciation of the achievements of the early histopathologists and an interpretation of their errors are possible only if these deficiencies in their technical methods are recognized.

Schwann's blastema theory, i. e. a structureless solid or fluid in which cells subsequently appear much as crystals arise in a supersaturated solution, appealed to the pathologists. These investigators thought they had found such a blastema in recent thrombi and fibrinous exudates. They observed that cells similar to the cells described by Schwann in normal tissues appeared within these substances after several days. Pus, organizing thrombi and exudates were therefore interpreted in the light of Schwann's hypothesis. The possibility of an infiltration or proliferation of cells into the thrombus from the adjacent tissue did not occur to observers for many years. One of the earliest records of this view is found in a footnote by Busk and Huxley to their translation of Kölliker's "Manual

1. Schlumberger, H. G.: The Origins of the Cell Concept in Pathology, Archives of Pathology, to be published.

of Human Histology," 1853. They wrote "There cannot be said to be any evidence of the occurrence of free cell development in animals, so long as in any case cited it is not shown that the first formed particles which make their appearance cannot have derived their origin from preexisting formed particles. . . . In pathological exudations, for instance, who shall determine that the first structural elements which appear, granules, free nuclei, exudation corpuscles, etc., are not directly derived either from the blood or from the tissue into which the exudation has taken place?"

Inflammation was considered to be the elaboration of an exudate derived from the blood. If the exudate was thin and watery it presumably lacked the necessary nutritive properties, and only a few granules or free nuclei could be engendered in it. The prognosis in such instances was grave. If, however, the exudate was thick, having the consistency of cream, it was thought to be rich in germinal substances and capable of producing many primitive cells. When the quantity of exudate was small the cells were thought to be directly converted into the tissue affected. The portion not used in cell production was thought to be resorbed or dried up. This served to explain healing by first intention, the small amount of fluid present in the wound being converted to epithelium at the surface and connective tissue in the deeper regions. If the quantity of exudate was somewhat greater and all of it converted into tissue cells, hypertrophy of the affected organ would result. When the amount of exudate was very large, many of the primary cells were not converted into tissue cells but washed away in the fluid medium as pus corpuscles. This concept of tissue formation seemed to lend support to the idea that a viscid yellow exudate was a "laudable pus."

A few investigators, notably William Addison, disagreed with this derivation of the pus cells, insisting that they were white blood corpuscles that had passed through the capillary walls into the tissues. As early as 1843, Addison recorded his microscopic observations on the web of a frog's foot which had previously been placed in warm water. He noted the peripheral position of the leukocytes in the dilated capillaries and their accumulation in the surrounding tissues. Although he did not witness the migration of the cells through the vessel wall, Addison insisted that it must be so and accounted for his failure on the ground that the "processes are too slow for us to follow from beginning to end all the actual stages."

Yet this work passed unnoticed. When it became clear that pus corpuscles like other cells must arise from preexisting cells, it was assumed that they were derived from epithelium or connective tissue. The discovery of tissue macrophages seemed to lend some support to this belief. In "Die Cellularpathologie"

Virchow expressed skepticism of the intravascular origin of pus cells.

The first extensive application of the cell doctrine in pathology was made by Johannes Mueller in his study of tumors. Schwann had taken up the microscopic examination of tissues on the suggestion of Mueller and carried out his investigation in the latter's laboratory. As early as 1835 Mueller described what he called the "fat cells" in a lipoma. His book on tumors appeared in 1838, shortly after the publication of Schwann's work. In it Mueller has words of high praise for his pupil and wholeheartedly accepts the blastema theory, believing that "the germinal cells of carcinoma do not arise from preexisting fibers but develop independently from a true morbid fluid between the tissue cells." Mueller noted that among other cells present in cancers were some spindle shaped ones which he called "tailed corpuscles." Other investigators at once interpreted these to be specific for all cancers; this in spite of the fact that Mueller had warned against the overenthusiastic use of the microscope as a diagnostic aid. In fact, he said that "microscopic and chemical analysis will therefore never become a means of medical diagnosis; it would be ridiculous to wish this or even consider it possible." Nevertheless, for decades thereafter pathologists sought the "tailed corpuscles" much as their predecessors had searched for the philosopher's stone.

During the decade 1845 to 1855 microscopists were much concerned with the structure of connective tissue, bone and cartilage. Virchow did important work in this field and first clearly expressed the view that connective tissue is cellular in character and that the lacunae in bone contain cells which are related to those of cartilage and connective tissue. The investigations of embryologists on the cleavage of the egg cell, and of plant and animal histologists on the growth of adult tissue, cast increasing doubt on the origin of cells within a blastema.

In 1852 Remak wrote that "the pathological tissues are no more formed in an extracellular cytoblastema than are normal structures, rather they are derivatives of normal tissues of the organism." Three years later, speaking specifically of tumors, but including all tissue growth, Virchow coined the aphorism *omnis cellula e cellula*. However, he replaced the blastema with the connective tissue, finding in the latter the source of all neoplastic growth. His insistence on the derivation of carcinoma from connective tissue led to much confusion and was not definitely refuted for many years. Nevertheless, with the publication of "Die Cellularpathologie" in 1858, Virchow presented physicians with a concept of disease which, though modified, is generally applicable today.

Current Comment

DEMEROL WITHIN PURVIEW OF NARCOTIC LAWS

With the approval, July 1, by the President of a law enacted by Congress just prior to recess, the synthetic drug designated as isonipocaine was brought within the purview of the federal narcotic laws. This drug is marketed in the United States under the trade name of "Demerol." All manufacturers, wholesalers, retailers and practitioners procuring, prescribing or dispensing Demerol, if not already registered, must effect registration in the appropriate class under the federal narcotic law. They must also submit to the collector of internal revenue having jurisdiction, on or before September 1, an inventory on appropriate forms of all Demerol on hand as of July 1, 1944. Physicians must submit the required inventory on form 713, which may be obtained from the collector's office. Hereafter manufacturers of Demerol must tax stamp each package before sale or removal. Wholesalers, retailers and practitioners who have in their possession unstamped packages of Demerol, quantities manufactured prior to July 1, must affix to each package their own label or paster bearing the legend "In stock, inventory July 1, 1944," followed by the name or initials of the owner. Packages without stamps or without identifying labels after a reasonable time will be subject to possible seizure and forfeiture. Essentially, the effect of this law is to subject the use of Demerol to the same restrictions imposed on the use of narcotic drugs, with the exception that no preparation containing Demerol in any quantity is exempt. The House of Delegates at its June session recorded its approval of this legislation. During 1944, state narcotic laws in six states were amended to bring isonipocaine within their coverage—Kentucky, Mississippi, New Jersey, New York, South Carolina and Virginia.

THE DEMOCRATIC PLATFORM

A careful reading of the platform recently adopted by the Democratic party discloses the following language that may relate directly or indirectly to a health program:

Beginning March 1933 the Democratic Administration . . . provided social security, including old age pensions, unemployment insurance, security for crippled and dependent children and the blind. . . .

We pledge the continuance and improvement of these programs. . . .

We offer these postwar programs:

A continuation of our policy of full benefits for ex-service men and women, with special consideration for the disabled. . . .

The enactment of such additional humanitarian, labor, social and farm legislation as time and experience may require, including the amendment or repeal of any law enacted in recent years which has failed to accomplish its purpose. . . .

We reassert our faith in competitive private enterprise free from control by monopolies, cartels or any arbitrary private or public authority.

CIVILIAN DEFENSE AT HARTFORD CIRCUS FIRE

On July 6 a disastrous fire at the Ringling Brothers Barnum and Bailey Circus in Hartford, Conn., resulted in the death of 150 persons and injuries to more than 200. Taking the lead in caring for the victims was the Hartford civilian defense organization, which provided blood plasma. The transfusion administration sets from the New York City Civilian Defense Emergency Medical Service also were instrumental in saving the lives of many of those seriously injured and burned. Dr. John J. Bourke, medical assistant to the director of the U. S. Office of Civilian Defense, reached Hartford by plane from LaGuardia Field with 150 transfusion administration sets and extra filters which had been requested by the Hartford Emergency Medical Service. More than 500 blood plasma sets were available at the time of the fire, and additional units of dry plasma were provided immediately. The emergency medical service set up in Hartford in connection with the Office of Civilian Defense served an invaluable purpose in this disaster. The continuance of this and similar organizations after the war will doubtless receive favorable action.

HEALTH PLATTERS IN PENNSYLVANIA AND ARIZONA

Radio "platter" (transcription) broadcasts furnished by the Bureau of Health Education are being broadcast over a number of radio stations in Pennsylvania under the auspices of the Committee on Public Relations of the Medical Society of the State of Pennsylvania. WFBG at Altoona will broadcast *Before the Doctor Comes*. WCED at Dubois has a set of *American Medicine Serves the World at War* and will start weekly broadcasts July 17. Dodging Contagious Diseases will go on WISR, Butler, for twelve weeks beginning Saturday, July 15. WBAX at Wilkesbarre is running *American Medicine Serves the World at War* on Monday, Wednesday and Friday and *Dodging Contagious Diseases and Before the Doctor Comes* on Tuesday and Thursday. Other broadcasts are scheduled tentatively. Altogether, twelve radio stations in Pennsylvania have requested broadcasts including three in Philadelphia and two in Pittsburgh; in cases like these, "first come, first served," says the state medical society. These radio transcriptions are available to any state medical society whose committee or officers will make the necessary arrangements for broadcasting within the state. They are available also to county medical societies and to health departments with the approval of county medical societies. Recent communications from the Arizona State Medical Association¹ indicate that there is a steady demand for copies of the scripts from listeners. One Arizona radio station says "we have had more audience response both by mail and phone than any other educational program in [their] history. Many have commented to their personal physicians about the programs—all have been along the lines that the listener was surprised and pleased at the helpful quality of the programs."

1. Health Transcription Broadcasting in Arizona, J. A. M. A. 124: 1204 (April 22) 1944.

MEDICINE AND THE WAR

ARMY

INDUSTRIAL MEDICAL PROGRAM OF THE ARMY

The Army is very likely the largest single employer in the country today.¹ Not only does it operate its own arsenals, depots and industrial plants, but also the Surgeon General's Office is responsible for sanitation, hygiene and medical supervision over army owned contract operated installations which are located on military reservations. The chain of responsibility extends through the Surgeon General, who establishes policy and maintains advisory supervision, into the service commands, the army air forces, to the ports of embarkation under the control of the chief of transportation, and to the chief of ordnance.

In the Surgeon General's Office the Occupational Health Division functions in the Preventive Medicine Service. It establishes policy, gives technical advice, supervises the Army Industrial Hygiene Laboratory and maintains liaison with other governmental agencies concerned with industrial health and safety. The Army Industrial Hygiene Laboratory, located in the School of Public Health at Johns Hopkins University in Baltimore, surveys army industrial installations as to environmental hygiene and provides medical and engineering consultation to control occupational health hazards.

The plan of organization in each service command includes the appointment of a qualified industrial medical officer and a qualified sanitary corps officer as the industrial hygiene engineer, acting under the direction of the service command surgeon. These officers make inspections, recommend the installation of new or additional medical facilities, participate in industrial hygiene surveys and cooperate with other personnel in the service command in the control of absenteeism and the prevention of industrial accidents. Requests for assistance from the Office of the Surgeon General are transmitted by the commanding general of the service command.

The commanding general of the Army Air Forces makes use of the central agency set up in the Surgeon General's Office. He also is empowered to provide personnel for developing industrial medical services in army service forces commands and designates qualified medical officers and sanitary officers to conduct adequate industrial health programs. The chief of transportation acts in an identical capacity at the ports of embarkation.

In the installations themselves medical responsibility may reside in a medical officer, a contract surgeon or civilian physician as circumstances suggest. In any case the duties include physical examination (preplacement and periodic), emergency care, immunization, control of occupational health hazards, maintenance of proper reports and records, industrial hygiene consultation services, health programs, cooperation with safety programs and the necessary measures for a healthful work environment. In all of these services the responsible officer is assisted by the industrial hygiene engineer.

Special regulations apply to personnel. Civilian physicians qualify for assignment through civil service, or contract surgeons are employed to conduct the medical services at all army operated industrial plants. Such employment customarily follows after authorization by a service command and after clearance with the Procurement and Assignment Services. Funds are allotted by the service command. Registered graduate nurses not eligible for service in the Army Nurse Corps are generally employed in army operated plants. This rule can be modified only by special action of the commanding generals of the army service forces or army air forces. Supplies and equipment are available from the Surgeon General or appropriate medical department distribution depot.

1. Industrial Medical Program of United States Army, Circular 198, War Department, Washington, D. C., May 20, 1944.

COL. SANFORD W. FRENCH II RETIRES

Special orders were issued recently from the headquarters of the Fourth Service Command announcing that Col. Robert C. McDonald, commanding officer of the England General Hospital, Atlantic City, is replacing Col. Sanford W. French II as Fourth Service Command surgeon. Colonel French, who has been command surgeon for the past two and a half years, is on sick leave from the Lawson General Hospital. His retirement will end a military career of forty-two years' continuous service, eight years as chief petty officer in the Navy with service in Guam and the Philippine Islands and thirty-four years in the Army with service in Panama and at ten different posts within the United States.

In addition to heading the medical branch, Headquarters Fourth Service Command, Colonel French was the instigator of establishing eighty-nine allergy clinics in 1942 at general and station hospitals throughout the command. Another project which Colonel French was instrumental in establishing is the treatment of acute venereal diseases while patients are kept on a duty status. This project was pioneered in the Fourth Service Command in March 1942, but after a War Department report in 1943 it was made standard operating procedure for all service commands. The most recent program with which Colonel French has been affiliated is the reconditioning service for wounded men returning from overseas. Two years ago a small reconditioning service was set up in station hospitals, but it was not until recently that the need for a definite program was recognized by the Surgeon General's Office in Washington. The Daytona Beach Convalescent Hospital, under command of Col. Philip L. Cook, is the latest Fourth Service Command installation giving full time to this new reconditioning program. Following his retirement, Colonel and Mrs. French will live in San Antonio, Texas.

EIGHT DECORATED FOR TYPHUS CONTROL SERVICE

The War Department has announced the award of the Bronze Star Medal to an officer of the Sanitary Corps and seven enlisted men of the Medical Department who conquered a virulent form of typhus on Goodenough Island in the South Pacific. Their citation states that, "Though fully aware of the danger of this particularly virulent form of typhus and its high mortality rate, they voluntarily applied themselves to the task of eliminating the causes of it. Their zeal and thoroughness resulted in the rapid and complete control of the disease on this island." Their services were rendered during the periods from Dec. 27, 1943 to Feb. 7, 1944 and March 13 to 22, 1944. The awards were made to:

Capt. Charles Lose III, East Cranford, N. J.
Staff Sergeant John O. Beasley, Charleston, W. Va.
Sergeant William G. Osborn, Bronx, New York.
Technician (4th grade) Joseph H. Downing, Cranford, N. J.
Technician (4th grade) Joseph S. Burat, Swedesburg, Pa.
Corp. Stephen P. Findeis, Linden, N. J.
Technician (5th grade) Nicholas A. Barbarotto, Bronx, N. Y.
Technician (5th grade) William M. Stokes, West Collingswood, N. J.

ARMY HOSPITALS MERGE

The Fort Benjamin Harrison Station Hospital (Fort Benjamin Harrison, Indiana) will consolidate with the Billings General Hospital, it was announced recently, by Col. Henry E. Tisdale, commanding officer of the fort. Major S. T. Stenberg, post surgeon, will have charge of a dispensary to be established for personnel now being cared for in the station hospital. Dispensary cases requiring hospitalization will be transferred to Billings Hospital. Many buildings now utilized

by the station hospital will be transferred to the jurisdiction of Col. Harry L. Dale, commanding officer of Billings Hospital. All medical activities of the reception center, the post sanitary service, dental service and physical examination required for fort personnel will continue under the jurisdiction of Colonel Tisdale, who states that the consolidation of these hospitals is a step toward more economical and efficient operation.

AIR EVACUATION AIDS WOUNDED IN BURMA

Col. Don Flickinger, wing surgeon of the AAF Air Transport Command, India-China Wing, who recently returned to the United States for reassignment, told of the increasing number of sick and wounded being evacuated by air transport in the China-Burma-India theater of operations and disclosed that among them were hundreds of Chinese soldiers wounded in action against the Japanese in Burma. Hundreds of other casualties of the Allied ground forces fighting in Burma also are being evacuated by air, the total number of patients in March being 1,106 and in April 1,342. Six regular air evacuation "runs," one of them over the Hump, are made by the Air Transport Wing each week, the patients on each being cared for by flight surgeons and flight nurses.

Air evacuation medical personnel are facing the same hazards that the ATC pilots do on such runs. In one instance a flight nurse, a flight surgeon and an enlisted surgical technician were wounded when a Japanese bomber bombed and strafed their field just as they were taking off in a transport plane. Colonel Flickinger stated that the general health of the flying personnel making the dangerous trips over the Hump, taking in supplies to China, was good. Many factors, such as better sanitation, food, living conditions, emergency rescue, training and rotation of air crews back to the United States, have greatly improved the physical and mental status of the personnel. Colonel Flickinger said that the three principal reasons for the good standard of health maintained in the wing were the basic toughness of the American soldier, the vigilance of medical officers and the support and backing of the commanding general in all recommendations by the flight surgeon.

In August 1943 Colonel Flickinger parachuted with medical supplies to the aid of 20 survivors of a four engine transport plane which crashed in a wild region of Burma. The survivors included two U. S. government officials, a radio news commentator and Chinese army officers. Colonel Flickinger was awarded the Legion of Merit in 1942 for his experiments with devices to aid in sighting pilots forced down at sea. He also holds the Distinguished Flying Cross, Soldier's Medal, Air Medal and a Presidential unit citation.

ARMY TAKES OVER MASON GENERAL HOSPITAL

The Mason General Hospital, Brentwood, L. I., N. Y., was turned over formally to the Medical Corps on June 22 and was dedicated to the recovery of psychoneurotic casualties from both battle and training areas. Major Gen. Norman T. Kirk, Surgeon General of the Army, gave the dedicatory address. Built by the state of New York as a unit of Pilgrim State Hospital, which it adjoins, the Mason General Hospital can house 1,348 patients normally and 2,000 in an emergency. It has twenty-eight wards on seven floors in four modern fire-proof pavilions radiating from central kitchens and mess rooms on each floor. The Army also has established at the hospital its special school for training medical officers in psychoneurology. It already has 1,000 on such duty and will add seventy graduates of classes which go through the hospital every three months. These graduates go directly to the front. The faculty of the school is headed by Col. William C. Porter.

The hospital was named in honor of Brig. Gen. Charles F. Mason, who had a distinguished career in the Medical Corps and who died in 1922.

Col. Steve C. Odom is the commanding officer of the hospital.

MEDICAL ADMINISTRATIVE OFFICER QUOTAS RAISED

An increase in quotas for admissions to officer candidate courses leading to commissions in the Medical Administrative Corps of the Army was announced July 12. The new quotas permit acceptance of 2,000 men within the next eight weeks for seventeen week courses. The increase will permit more Medical Administrative Corps officers to free members of the Medical Corps for professional duties. Under the new plan the Officer Candidate School at Carlisle Barracks, Pennsylvania, was reopened on June 24. Three more classes of 500 men will be admitted to Camp Barkeley at two week intervals during the summer. Two classes of 250 men each will start, four weeks apart, at Carlisle Barracks in addition to the class now in training there.

ARMY AWARDS AND COMMENDATIONS

Lieutenant Colonel Samuel B. Prevo

Lieut. Col. Samuel B. Prevo has been awarded the Soldier's Medal by Major Gen. C. L. Chennault for distinguishing himself by heroism in his capacity as surgeon of the East China Wing of the 14th U. S. Air Force. Dr. Prevo, who was formerly surgeon with the AVG's in China, was on duty last December as medical officer of the day when a heavy bombardment plane loaded with bombs crashed while taking off. Some of the bombs were delayed action type whose fuses had been damaged by the crackup, endangering the lives of all in the crash area. Dr. Prevo, nevertheless, aided in extinguishing the fire and then worked continuously for eight hours helping to extricate crew members from the wreckage and treating the injured. During this period he crawled into the plane several times to administer sedatives to men trapped in the plane. The citation accompanying the award read "By exposing himself to great personal danger in order to save the lives of others he demonstrated heroism in keeping with the finest traditions of the American military service." Dr. Prevo graduated from George Washington University School of Medicine, Washington, D. C., in 1937 and entered the service in February 1941.

Captain Henry H. Hancock

For crawling through minefields and enemy fire to rescue a wounded soldier during the Sicilian campaign, Capt. Henry H. Hancock was presented the Silver Star for gallantry in action. The citation accompanying the award read "During an attack on . . . Sicily, on . . . July 1943, a soldier from Company C, . . . Infantry, was wounded in the chest by machine gun fire and was bleeding profusely. In order for medical aid to be rendered to him, it was necessary for Captain Hancock to pass through enemy minefields and barbed wire, in view of enemy positions. Captain Hancock, with utter disregard for his own safety and with full knowledge of the existing dangers, worked his way forward through these obstacles and was successful in effecting the evacuation of the soldier. The speedy rendition of this medical aid and the unselfish, courageous action of Captain Hancock resulted in the saving of the wounded soldier's life. The gallant conduct of this officer was an inspiration to all who witnessed it and reflects great credit on him and the military service." Dr. Hancock graduated from the University of Virginia Department of Medicine, Charlottesville, in 1937 and entered the service Sept. 20, 1942.

Captain Emory C. Kinder

Capt. Emory C. Kinder of Kingstree, S. C., has been awarded the Soldier's Medal in England, where he is a flight surgeon with an Eighth AAF Flying Fortress group. Dr. Kinder was decorated for heroism in risking his life to save a wounded gunner who was pinned in a flying fortress by a live bomb which entered the tail of the plane. After the fortress landed with the bomb embedded in its tail Dr. Kinder entered the ship and freed the tail gunner, although the bomb was in danger of exploding any moment. Dr. Kinder graduated from the Medical College of the State of South Carolina, Charleston, in 1939 and entered the service June 13, 1942.

NAVY

NAVY AWARDS AND COMMENDATIONS -

Captain French Robert Moore

The Legion of Merit was recently awarded to Capt. French Robert Moore "for meritorious conduct in the performance of outstanding service prior to and during action against Japanese forces on Tarawa, Gilbert Islands, Nov. 20-28, 1943. He effectively coordinated the efforts of medical units with the infantry teams and by his superb professional skill and knowledge contributed to the combat efficiency of the division. The fine record of the performance of medical units on Tarawa was in a large part due to his outstanding leadership and courage in the face of the enemy. On November 20, under heavy enemy fire, he participated in the rescuing of a number of wounded from under the pier and from damaged and stranded landing boats. His valorous action in rescuing these wounded, rendering first aid treatment and subsequently transporting them to a troop ship under fire was responsible for the saving of their lives. His thorough and complete spirit of cooperation, coupled with his painstaking forethought in organization and indefatigable and tireless devotion to duty, were of invaluable assistance and in keeping with the highest traditions of the United States Naval Service." Dr. Moore graduated from the University of Oregon School of Medicine in 1926 and entered the service the same year. He is now on duty with the planning section of the Bureau of Medicine and Surgery of the Navy Department, Washington, D. C.

Captain Richard A. Kern

A Letter of Commendation was recently presented to Capt. Richard A. Kern, formerly of Wynnewood, Pa., "For meritorious and efficient performance of duty while serving as Medical Consultant on the Staff of the Commander South Pacific Area and South Pacific Force during the period from August 1943 to February 1944. Captain Kern, in discharging his duties, made his services available to every medical officer in the South Pacific Area, visiting every medical facility many times. He traveled throughout the forward and combat areas and worked with the medical officers in the front line of combat operations on Bougainville, British Solomon Islands. At all times his objective was to improve the treatment of the sick and wounded, and no undertaking was too great, nor any detail too small, to bring forth his best efforts toward that end. His tireless endeavors, professional ability and devotion to duty were in keeping with the highest traditions of the United States Naval Service." Dr. Kern graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1914 and entered the Navy Feb. 2, 1942.

Lieutenant Commander Milo A. Youel

The Navy and Marine Corps Medal was recently presented to Lieut. Comdr. Milo A. Youel "for heroic conduct in rescuing a comrade from drowning at Flamingo Beach, Culebra, on Jan. 25, 1941. Sighting a man struggling in the treacherous waters and apparently unable to help himself, Lieutenant Commander (then Lieutenant, Junior Grade) Youel gallantly risked his life in order to effect a rescue. Courageously diving into the heavy surf, he reached the side of the exhausted man and with extreme difficulty succeeded in bringing him to safety. His personal valor and daring initiative in the face of grave peril were in keeping with the highest traditions of the United States Naval Service." Dr. Youel graduated from the University of Minnesota Medical School, Minneapolis, in 1940 and entered the service July 24, 1940.

Lieutenant Francis Bruce Monroe

Lieut. Francis B. Monroe, formerly of Iron River, Mich., was recently awarded the Bronze Star Medal for service as set forth in the following citation: "For meritorious service as Medical Officer of a Boat Base during offensive operations in the Rendova-New Georgia Area, Solomon Islands, from June 30 to Aug. 5, 1943. Working tirelessly and with complete disregard for his own personal safety throughout the entire

campaign leading up to and including the capture of Munda, Lieutenant Monroe unhesitatingly proceeded to all forward areas where medical attention was needed and, skilfully administering first aid to the wounded under extremely hazardous conditions, was largely responsible for keeping the number of casualties to a minimum. Lieutenant Monroe's courageous conduct and unwavering devotion to duty in the face of grave peril were in keeping with the highest traditions of the United States Naval Service." Dr. Monroe graduated from the University of Chicago School of Medicine in 1940 and entered the service July 17, 1942.

Lieutenant Commander Henry Perkins Hopkins

The Bronze Star Medal was recently awarded to Lieut. Comdr. Henry P. Hopkins, formerly of Chatham, Mass. The citation read "For meritorious service as Regimental Surgeon attached to a Marine Regiment during operations in the Solomon Islands Area from Sept. 21, 1942 to July 29, 1943. Executing his duties under the most hazardous and trying battle conditions during three major engagements in the Matanikau River area on Guadalcanal, Solomon Islands, Lieutenant Commander Hopkins displayed exceptional zeal, courage and outstanding skill in ministering to the men under his professional care. Responsible for the health and welfare of his regiment during the rehabilitation stage, he successfully handled the many and varied problems of sanitation in the tropics and reduced to a minimum the hazards of infection and disease. His conduct throughout his vital combat period was in keeping with the highest traditions of the United States Naval Service." Dr. Hopkins graduated from McGill University Faculty of Medicine, Montreal, in 1932 and entered the service Sept. 9, 1941.

Commander Emmett L. Calhoun

The Silver Star Medal was recently awarded to Comdr. Emmett L. Calhoun. The citation accompanying the award read "Comdr. Emmett L. Calhoun (MC), U.S.N.R., Hoquiam, Wash.: Serving in the U. S. S. *Northampton* in the Solomons 26-27 Oct. 1942, he insisted on manning his station although weakened by a major emergency operation. He was seriously injured during an attack but next day, when 114 wounded survivors were brought aboard, he worked tirelessly for four days to relieve their suffering." Dr. Calhoun graduated from Northwestern University Medical School, Chicago, in 1925 and entered the service Feb. 28, 1942.

HOSPITAL CORPS OFFICERS

Seventy-two Hospital Corps officers completed a course in hospital administration at the National Naval Medical Center July 5. These officers are now being assigned to various naval hospitals throughout the United States. A new class of seventy-five Hospital Corps officers has been placed under orders to report to the U. S. Naval Hospital, National Naval Medical Center, Bethesda, Md., for a six months course in hospital administration. On completion of this course they will also be assigned to various medical department activities in the United States for duty.

A class of thirty-five Hospital Corps officers completed a special course in epidemiology at the National Naval Medical Center July 17. These officers will be assigned to various epidemiology units for duty.

NAVY PERSONAL

Lieut. Sara G. Krout, Dental Corps, U.S.N.R., is the first woman dentist to be appointed for service in the Navy. She was recently enrolled in the Women's Reserve, and her nomination for active duty is now pending. Dr. Krout is a graduate of the Schroeder College of Dentistry and Institute of Natural Sciences and the University of Riga (Latvia). She was naturalized in Chicago in 1921 and has been in private dental practice since 1928.

MISCELLANEOUS

FIRST BIRTHDAY OF U. S. CADET
NURSE CORPS

The first birthday of the U. S. Cadet Nurse Corps was observed by a flag presentation ceremony on the steps of the U. S. Public Health Service building, July 1, in the nation's capital. The new white, silver and scarlet banner was presented by Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, to Miss Lucile Petry, director of the Corps. It carries the emblem of the Maltese cross, distinguished insignie of the 100,000 Cadet Nurses now preparing, with the aid of full federal scholarships, for positions in essential civilian or military nursing. Frances P. Bolton, Congresswoman from Ohio and sponsor of the Bolton act creating the corps, was



Banner (at left) presented to United States Cadet Nurse Corps.

present at the ceremony. Other guests included Watson B. Miller, assistant administrator of the Federal Security Agency; Major Gen. Norman T. Kirk, Surgeon General, U. S. Army; Vice Admiral Ross T. McIntire, Surgeon General, U. S. Navy; Dr. L. R. Thompson, Dr. R. E. Dyer, Dr. Carl Michel, Dr. W. T. Wright Jr., Mr. John K. Hoskins, Assistant Surgeon Generals of the U. S. Public Health Service, and Senior Surgeon Dr. V. M. Moore. Special events marking the first birthday celebration on the U. S. Cadet Nurse Corps also took place in New York, Chicago, Hollywood, Fort Worth and a few other cities.

Youngest of the women's uniformed organizations, the U. S. Cadet Nurse Corps has attracted thousands of members from all walks of life to serve in one of the finest professions open to women. These recruits, identified by their trim gray uniforms marked by silver Maltese crosses and red epaulets, are helping to make it possible for hospitals to release graduate nurses for more highly specialized civilian nursing positions and for duty with the armed forces at home and overseas.

PUBLIC HEALTH UNDER HITLER

According to *LaCroix* of March 2, 1944 (France) Professors Guillaïn and Mollaret have reported to the Medical Academy a number of serious poisoning cases among factory workers, which have paralyzed them in the upper limbs and eventually caused a general paralysis. An investigation disclosed that the poisoning was due to the utilization of industrial oils brought home by the workers to make potato chips. The academy recommended the public authorities to request all industrialists to warn the workers against the toxic qualities of lubricating oils.

According to *Universul* of March 6, 1944 (Rumania), at a meeting of the Council of Collaboration of the country of Cetates Alba (Ackermann) it was pointed out that all necessary preventive measures against typhus have been taken. No villagers are admitted into towns on market days except on producing a certificate to the effect that they have been properly deloused. In view of the insufficiency of the medical personnel needed for combating the current epidemics it was approved that two more physicians, refugees from Kirovograd, should be accepted into service.

Algemeen Handelsblad of March 10, 1944 (Netherlands) reports that, as in 1943, school children and infants will be supplied with vitamin C tablets this spring as from March 27. Pupils of all council and private schools, preparatory, ordinary and special elementary schools, extended elementary schools, secondary schools and schools preparing for universities and handicraft schools will be given the tablets. This applies to Dutch as well as to German children.

Berlingske-Tidende of April 28 (Denmark) reports that Denmark is now suffering from a serious shortage of physicians. "This shortage is caused by the fact that about 100 Danish physicians and especially assistant physicians are for the time being unable to practice in this country.

HOSPITALS NEEDING INTERNS AND
RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in *THE JOURNAL* July 22, page 855)

GEORGIA

Crawford W. Long Memorial Hospital, Atlanta. Capacity, 269; admissions, 9,737. Dr. L. C. Fischer, Administrator (interns, October 1).

ILLINOIS

Belmont Community Hospital, Chicago. Capacity, 125; admissions, 3,778. Miss Gertrude F. Scofield, Superintendent (interns).

MASSACHUSETTS

Worcester Hahnemann Hospital, Worcester. Capacity, 151; admissions, 3,372. Miss Erna M. Kuhn, R.N., Superintendent (interns).

MICHIGAN

St. Lawrence Hospital, Lansing. Capacity, 230; admissions, 6,897. Sister M. Assisium, Superintendent (interns).

MINNESOTA

Bethesda Hospital, St. Paul. Capacity, 180; admissions, 6,083. Rev. L. B. Benson, Superintendent (interns).

NEBRASKA

Lincoln General Hospital, Lincoln. Capacity, 213; admissions, 4,574. Mr. Robert B. Witham, Administrator (interns).

NEW YORK

Auburn City Hospital, Auburn. Capacity, 240; admissions, 6,844. Mr. Jerome F. Peck Jr., Superintendent (mixed residencies).

ORGANIZATION SECTION

WASHINGTON LETTER

(From a Special Correspondent)

July 22, 1944.

Advantages of a Program for Athletics

One view on national physical fitness which is widely held here but which has not been given official expression is that, sooner or later sponsors and promoters of sports, both amateur and professional, will have to give primary interest to the health aspect. At present these sponsors and the participating athletes are largely the beneficiaries of any accruing financial, publicity or prestige advantages, and it is believed that the youth of the nation can be helped to participate considerably more from the standpoint of physical well-being.

A letter recently received from a navy ensign who is in the Pacific contained the statement "almost every invasion plan out here seems to be: After landing, remove dead bodies and commence laying out a baseball diamond." This, according to the informant, indicates the attitude of men on the fighting fronts toward sport, which, he added, is of course a point that needs no arguing. Most healthy young people like sports and take part in one or another of them. But it does emphasize that when our boys come back we are likely to have an even more sport minded nation. "The sports world itself must soon take up its share of this job of improving national physical fitness. Just as physical education officers and doctors throughout the United States are endeavoring to improve standards of health and physical fitness, so must every leader in sports. Physical fitness is an over all responsibility of the sports fraternity, and it is high time they assumed that responsibility."

The progressive stand taken by Russia in refusing to allow her supply of doctors to be drained away into fighting services was mentioned as an attitude toward physical fitness that might be emulated in this country. It was pointed out that the Russian nation makes physical culture an integral part of the national program of sports. A report by the chief of the physical culture department of the Russian All Union Council of Trade Unions and president of the National Association of Gymnasts reveals the emphasis that the Soviet gives to sports among industrial

and office workers. For instance, trade unions alone have 212 stadiums, 1,559 athletic fields, 420 skiing clubs, 238 water sports clubs, 552 gymnasiums, 20 athletic clubs, 29 alpine camps and 4 cycling tracks. Prior to the war the membership of the athletic societies included 170,000 trackmen, 166,200 volley ball players, 157,000 skiers, 135,400 gymnasts, 237,600 hunters, 114,000 chess players, 103,000 soccer players and over 300,000 alpinists. Most of these are now fighting against the Nazis, many having been decorated for distinction in action.

These figures might not appear significant in comparison with numbers of athletes in one segment of the American population, but they were mentioned as indicating how health consciousness can be developed in a program of organized sports.

Definite progress is believed here to come from the plans for National Physical Fitness Year formulated jointly by the American Medical Association and the National Council on Physical Fitness. It is acknowledged that much can be done to remedy the drastic national situation revealed in draft rejection figures by emphasizing physical conditioning during the twelve months commencing September 1. But it is believed that this emphasis should continue indefinitely. The platform recommended for approval by the National Council on Physical Fitness at the July 27 and 28 meeting in Washington is regarded as a positive step in this direction. While this platform rightfully stresses the fact that attainment of physical fitness is primarily an individual responsibility, the problem would be made much easier if all the dramatization and inspiration that organized sport can promote were to back up the individual. Sports world leadership would advantageously complement the leadership expected of education, medicine, dentistry, public health, industry, labor "and other organized groups."

With sports and recreations now available for almost every one, it would give an added incentive if the public at large would learn that our national pastimes were being promoted for other purposes besides enriching or glamorizing a few lucky individuals. And sports, so efficiently organized professionally and in the amateur field, have the facilities already available into which national physical fitness could be incorporated as an integral function.

WOMAN'S AUXILIARY

Minnesota

At the Minnesota state convention held in Rochester, April 13-14, the auxiliary's projects for the year were given as cadet nurse requirement, collection of medical and surgical relief supplies, making of dressings for a cancer hospital, the dissemination of cancer control information, the placing of *Hygeia* in schools and clubs, and a thorough study of the Wagner-Murray-Dingell bill.

Mississippi

The Mississippi auxiliary held its annual state convention May 9-10 with Mrs. Eben J. Carey, national president, the guest of honor and speaker.

New York

The Nassau County auxiliary of New York has 159 members, 49 of whom are wives of men in service. These members have done 6,000 hours of war work, given \$100 to the Physician's Home Fund, provided speakers to talk on legislation and donated *Hygeia* to eleven schools and seventeen libraries.

Oregon

The Woman's Auxiliary to the Oregon State Medical Society has a room in the University of Oregon Medical School Library where are displayed on shelves a collection of historical medical books. Many collections have been added recently, among

them a display of Japanese medical equipment found in shell holes on one of the Gilbert Islands. Others are old medical books and instruments belonging to pioneer Oregon physicians.

Pennsylvania

The Woman's auxiliary to the state of Pennsylvania began its Medical Benevolence Fund in 1927 with the sum of \$100. Since then the contributions have reached \$56,667. Mrs. Walter Orthner, the president, writes "Words can never express the great good this money has done."

Tennessee

Mrs. W. A. Ruch, president of the Woman's Auxiliary to the Tennessee Medical Association, has visited every auxiliary in her state. She is also a worker in the Red Cross, as chairman of nutrition in Memphis and Shelby counties, and chairman of the Cutting of Surgical Dressings.

Virginia

The Woman's Auxiliary to the Northampton-Accomack Medical Society of Virginia held its quarterly meeting at the home of Mrs. Joseph E. Gladstone at Exmore recently. Rev. W. K. Haddock spoke on "The Five Tensions in the World Today." The next meeting will be an all day picnic at the cabin of Mrs. W. L. Cosby at "Silver Beach" on July 11.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Paul Bucy to Give Gorgas Lecture.—Dr. Paul C. Bucy, professor of neurology and neurologic surgery, University of Illinois College of Medicine, Chicago, will deliver the annual lecture of the Gorgas Medical Society at the University of Alabama School of Medicine, University, August 4. His subject will be "Movement and the Cerebral Cortex."

CONNECTICUT

Alvarenga Prize Awarded to Gervase Connor.—The College of Physicians of Philadelphia on July 14 awarded its Alvarenga Prize to Dr. Gervase J. Connor, instructor in surgery, Yale University School of Medicine, New Haven, for his work on "Anterior Cerebellar Function, an Analytical Study in Functional Localization in the Cerebellum in Dog and Monkey." The Alvarenga Prize was established by the will of Pedro Francisco da Costa Alvarenga, Lisbon, Portugal, an associate fellow of the college of physicians, "to be awarded annually by the College of Physicians on each anniversary of the death of the testator, July 14, 1883, to the author of the best memorial on any branch of medicine which may be deemed worthy of the prize." The college usually makes this award for distinctive published work and invites the recipient to deliver an Alvarenga Lecture before the college. In the recent instance the college awarded the prize for an "exceptionally important manuscript submitted in competition."

DISTRICT OF COLUMBIA

Medical Mission Goes to Study Aleutians.—A three man medical mission was to leave early in July for a visit in the Pribilof Islands in the Bering Sea to help local medical personnel to study and examine 400 Aleut natives who recently were repatriated after a two year stay in southeastern Alaska. Members of the mission include Dr. William A. Morgan, Dr. Roy Lyman Sexton and R. K. Thompson, D.D.S., all from Washington.

Latin American Visitors.—Marcelo Martínez Repetto, hematologist of Mérida, Mexico, has arrived in Washington at the invitation of the Department of State for three months' study and observation. —Dr. Ernesto Cofiño, professor of pediatrics on the Faculty of Medicine at Guatemala City, is also a guest of the state department for official study of child welfare programs in this country. —Dr. Amadeo Grosso Rossi, director of the Durazno Hospital, Durazno, Uruguay, and public health supervisor for the Durazno Department, which has some forty-five hospitals in all, is also a guest of the state department and is visiting the United States to study surgical practice and teaching technics.

ILLINOIS

Personal.—Dr. William R. Roberts, Cissna Park, and Dr. James McIlwain, Okawville, were recently made members of the fifty year club of the Illinois State Medical Society.

Special Society Elections.—Dr. Paul P. Youngberg, Moline, was elected president of the Iowa-Illinois Central District Medical Association at its recent annual meeting. Other officers include Dr. Glen W. Doolen, Davenport, Iowa, vice president, and Drs. James Dunn, Davenport, and Florens E. Bollaert, East Moline, who were reelected secretary and treasurer respectively. —Dr. David Slight was chosen president of the Illinois Psychiatric Society at its annual meeting in May. Dr. Joseph A. Luhan is the vice president and Dr. Frances Hannett the secretary-treasurer. All are of Chicago.

Chicago

Rush Alumni Election.—Dr. Hillier L. Baker was elected president of the alumni of Rush Medical College at a luncheon recently. Drs. William S. Horn, Fort Worth, Texas, Willson B. Moody, Omaha, and Franklin R. Nuzum, Santa Barbara, Calif., were chosen vice presidents. Dr. John M. Dorsey was reelected secretary-treasurer.

Male Volunteer Aids at Presbyterian.—A corps of male voluntary aids has been working at Presbyterian Hospital. After fourteen lectures and demonstrations in technics of taking temperatures, changing beds and other duties, the men started to work on June 26. In general the men volunteers rotate on a 6 to 10 p. m. shift, three or four of them working at a time.

Theodore Wachowski Temporarily in Charge of Radiology Department.—Dr. Theodore J. Wachowski, assistant professor of radiology and assistant director and chief of x-ray therapy in the Research and Educational Hospitals, University of Illinois, outpatient tumor clinic, on a temporary basis has been appointed in charge of the department of radiology, University of Illinois College of Medicine, pending the selection of a permanent successor to the late Dr. Adolph Hartung.

Dr. Kretschmer Receives Honorary Degree.—Dr. Herman L. Kretschmer, President of the American Medical Association, on June 6 received the honorary degree of doctor of science from Northwestern University. Dr. Kretschmer graduated at Northwestern University Medical School in 1904. According to the citation accompanying the degree, Dr. Kretschmer is a loyal alumnus whose contributions to science, teaching and organized medicine have brought great credit to his alma mater.

Health Talks for the Public.—Dr. Josiah J. Moore, president of the Chicago Medical Society and treasurer of the American Medical Association, gave the first lecture, July 26, in a series of popular health talks for the public sponsored by the Chicago Medical Society and given at the Museum of Science and Industry. Dr. Moore's subject was "Facts About Cancer." Other speakers will be:

Dr. Samuel M. Feinberg, August 2, Allergy, Facts and Fiction.
Dr. James H. Hutton, August 9, Your Glands and What They Do To and For You.
Dr. Edward E. Piszecek, August 16, Present Day Knowledge of Infantile Paralysis.
Dr. Andrew C. Ivy, August 23, Aviation Medicine.
Dr. Austin E. Smith, August 30, Modern Miracles in Drug Warfare.

Physicians Cited by University of Chicago.—On June 10 three physicians were included among a group cited by the University of Chicago, June 10, as "useful citizens": Drs. Margaret Bell, Ann Arbor, Mich., school of medicine class of 1921; Harry J. Corper, Denver, school of medicine class of 1911 and Oliver Perry Kimball, Cleveland, who served his first medical year at the university in 1913-1914. Dr. Kimball for years sponsored and collected funds from Cleveland alumni to underwrite a local scholarship at the university. Dr. Bell is chairman of the physical education department for women and physician in the student health service at the University of Michigan. Dr. Corper is assistant professor of medicine at the University of Colorado School of Medicine, Denver. The citations are awarded by the university for unselfish and effective service to the community.

Seminar on Industrial Medicine and Surgery.—The American Mutual Liability Insurance Company sponsored a war seminar on industrial medicine and surgery at the Stevens Hotel, Chicago, July 12-13. A report on the end results of ninety-two operations for intervertebral disks was presented by Drs. Henry C. Marble, Boston; Eric Oldberg, Paul B. Magnuson and William A. Bishop, Boston. The treatment of burns and lessons learned from the Coconut Grove Disaster was presented by Dr. Charles C. Lund, Francis H. L. Taylor, Ph.D., and Dr. Stanley M. Levenson, Boston. Other speakers were:

Dr. Walter S. Priest, Penicillin Therapy.
Dr. Hollis E. Potter, The Wedge Shaped Vertebra.
Dr. Oscar A. Sander, Milwaukee, Health Hazards of Electric Welding.
Dr. Paul G. Dick, X-Ray Aspects.
Dr. Dallas B. Phemister, Shock and Blood and Plasma Therapy.

The doctor's part in the job placement of disabled veterans was discussed by Dr. Bishop, Col. Robert H. Kennedy, M. C., Dr. Lewis J. Pollock and Mr. Arthur H. Johnson, Boston.

KANSAS

State Medical Election.—Dr. William P. Callahan, Wichita, was chosen president-elect of the Kansas Medical Society at its recent annual session and Dr. Marion Trueheart, Sterling, was installed as president. Dr. Franklin R. Croson, Clay Center, is the secretary.

LOUISIANA

Robert Strong Resigns at Tulane.—Col. Robert A. Strong, M. C., has resigned as professor and head of the department of pediatrics, Tulane University of Louisiana School of Medicine, New Orleans. According to the *Bulletin of the Orleans Parish Medical Society* Dr. Ralph V. Platon, who

has been serving as acting head of the department since Colonel Strong went into service, has been named to the position. Dr. Platon graduated at the University of Minnesota Medical School, Minneapolis, in 1936 and served there as clinical assistant in pediatrics until he joined Tulane.

Ochsner Foundation Offers Fellowships.—The Alton Ochsner Medical Foundation, 3503 Prytania Street, New Orleans, announces the availability of a number of fellowships in various branches of surgery and medicine. Appointments will be made for a period of one year subject to renewal for a total of three years. The fellows will be encouraged to register in the Graduate School of Tulane University of Louisiana, where, if accepted, they can work toward an advanced degree. The Ochsner Foundation, of which Dr. Dean H. Echols, New Orleans, is medical director, was created in January. It is a nonprofit organization, chartered under the laws of the state of Louisiana for scientific, educational, charitable and literary purposes. Directors of the foundation are:

Mr. Theodore Brent, president of the Mississippi Shipping Company.
Dr. Edgar Burns, professor of clinical urology, Tulane University of Louisiana School of Medicine, New Orleans.

Dr. Guy A. Caldwell, professor of orthopedics at Tulane.
Dr. Francis E. Le Jeune, professor and head of the department of otolaryngology of the department of otolaryngology at Tulane.

Mr. J. Blanc Monroe, attorney.
Dr. Edward William Alton Ochsner, William Henderson professor of surgery and head of the department of surgery at Tulane.

Dr. Curtis H. Tyrone, New Orleans.

An announcement stated that, although a number of the trustees are on the faculty of the Tulane school of medicine, the Ochsner Foundation has no official connection with the school.

MICHIGAN

George Cummings Named Director of Laboratories.—Dr. George D. Cummings, associate director, bureau of laboratories, Michigan State Department of Health, Lansing, has been appointed director of the department's bureau of laboratories. He succeeds the late Clifford C. Young, D.P.H., Lansing, who had held the position since 1918.

Dr. Humphreys Appointed Director of Mental Hygiene.—The state hospital commission has named Dr. Edward J. Humphreys, Coldwater, as director of mental hygiene to succeed Dr. Frank F. Tallman, Lansing, resigned. Dr. Tallman has accepted a similar position in the Ohio State Department of Health (THE JOURNAL, June 24, p. 589). Four child guidance clinics, established by the Michigan legislature, will begin functioning in September in Wayne County, Pontiac, Grand Rapids and Ypsilanti.

NEW YORK

Typhoid Carriers.—A total of 438 typhoid carriers, exclusive of those in state institutions, were under supervision in upstate New York at the close of 1943. Twenty-eight new carriers were added to, and 27 were removed from, the register during the year, according to *Health News*. Sixteen were discovered as a result of epidemiologic investigation of sporadic cases of typhoid, 7 by means of release cultures, 2 on the basis of information furnished by the New York City Department of Health and 1 was discovered accidentally at the time of surgical drainage of the gallbladder. Two previously discovered carriers were added to the register; these carriers had been residing temporarily out of the state. Of the 27 carriers whose names were removed from the register, 17 died, 8 carriers were removed because of change of residence to a community outside the jurisdiction of the department and 2 were removed from the active list because of commitment to state institutions.

New York City

Graduate Course in Clinical Medicine.—Columbia University College of Physicians and Surgeons has announced a series of part time courses in clinical medicine at the Mount Sinai Hospital, beginning September 25. A full time course in the recent advances in gynecology is planned for November 13-18. Additional information may be obtained from the Secretary for Medical Instruction, the Mount Sinai Hospital, Fifth Avenue at 100th Street, New York City 29.

Richard Freyberg Joins Hospital for Special Surgery.—Dr. Richard H. Freyberg, assistant professor of internal medicine and in charge of Rackham Arthritis Research at the University of Michigan School of Medicine, Ann Arbor, has been appointed chief of the department of medicine and pediatrics at the Hospital for Special Surgery, effective September 1. Dr. Freyberg will succeed Dr. Carlisle S. Boyd, who has been appointed to the board of consultants of the hospital. The Hospital for Special Surgery is maintained by the New York Society for the Relief of the Ruptured and Crippled.

Isolation Period Changed for Meningococcic Meningitis and Poliomyelitis.—The New York City Board of Health on July 11 amended section 89 of the sanitary code relating to isolation of persons affected with meningococcic meningitis and poliomyelitis. The isolation period for both these diseases was formerly fourteen days. In the future it will be limited until the temperature has reached normal. In an announcement, the board stated that the treatment of meningococcic meningitis with the sulfonamide drugs and penicillin has definitely shortened the time of recovery. In the case of poliomyelitis public health authorities now consider that the length of the isolation period may be safely limited to the period when the temperature is above normal. The board also deleted the requirements for the exclusion of contacts to these diseases from school or work.

NORTH DAKOTA

Dr. Wicks Ends Twenty-Five Years in Academy of Ophthalmology.—Dr. Frederick L. Wicks, Valley City, founder and first secretary of the North Dakota Academy of Ophthalmology and Otolaryngology, has resigned as secretary after serving twenty-five years in the position.

State Medical Election.—Dr. James F. Hanna, Fargo, was chosen president-elect of the North Dakota State Medical Association at its recent annual meeting and Dr. Frederick L. Wicks, Valley City, was installed as president. Dr. Leonard W. Larson, Bismarck, is the secretary. The next annual session will be held at Minot.

New Public Health Officers.—Francis C. Lawler, Sc.D., professor of bacteriology and immunology, University of North Dakota School of Medicine, Grand Forks, was chosen president of the North Dakota Public Health Association at a recent meeting in Fargo. Other officers include Anthony L. Bavone, Minot, vice president, Robert O. Baird, Bismarck, treasurer, and Mrs. Laura K. McCrory, Bismarck, secretary.

Dr. George Campana Appointed State Health Officer.—Dr. George F. Campana has been appointed health officer of North Dakota, effective July 1. He succeeds Dr. Frank J. Hill, who resigned to become city health officer of Minneapolis. Dr. Campana has served as director of the division of preventable diseases of the North Dakota State Department of Public Health since June 1943, when he came from New Rochelle, N. Y., where he had been acting city health officer. Dr. Campana graduated at the New York Medical College Flower and Fifth Avenue Hospitals in 1925. He served as assistant district state health officer with the New York State Department of Health in 1941-1942.

OHIO

New Venereal Disease Control Officer.—Dr. Ralph J. Doran, U. S. Public Health Service, has been assigned to the Dayton division of health as venereal disease control officer. The Dayton quarantine hospital was recently designated by the state health commissioner, Dr. Roll H. Markwith, Columbus, as a center to provide intensive therapy hospitalization for patients with communicable venereal disease.

Dr. Follansbee Honored.—Dr. George E. Follansbee, Cleveland, for many years chairman of the Judicial Council of the American Medical Association, has been awarded the distinguished service award of the Academy of Medicine of Cleveland. The citation accompanying the award enumerated the many years of service of Dr. Follansbee to the academy and acknowledged that he had done as much as any living physician to bring the academy of medicine to its present position of importance and influence.

Personal.—Dr. Leon Goldman, assistant professor of dermatology, University of Cincinnati College of Medicine, has been granted a fellowship by the Association of American Medical Colleges to study during July and August in Costa Rica, Guatemala and Mexico.—Dr. William E. Maine is now commissioner of health of Youngstown.—Dr. Ralph W. Holmes, Chillicothe, has been appointed a member of the silicosis board of referees by the state industrial commission, succeeding the late Dr. William M. Doughty, Cincinnati. Other members of the board are Drs. Raymond C. McKay, Cleveland, and Joseph A. Muenzer, Toledo.

RHODE ISLAND

Hospital News.—Butler Hospital, Providence, the oldest in the state, on May 10 celebrated its 100th anniversary. Among the speakers on the program were Drs. Edward A. Strecker, Philadelphia, on "The Contribution of Psychiatry to Demo-

cratic Morale"; Gregory Zilboorg, New York, "Psychiatric Problems in the Wake of the War"; Karl A. Menninger, Topeka, Kan., "The War Against Fear and Hate," and Alan Gregg, New York, "The Place of the Endowed Hospital in the Future."—The estate of Frederick S. Peck, former state finance commissioner, and his wife was recently donated to the Homeopathic Hospital, Providence, for use as a convalescent home or children's hospital. Mr. Peck was president of the hospital board of trustees for sixteen years.

TEXAS

Narcotic Violations.—Dr. John Lawrence Kirby, Muleshoe, pleaded guilty in the U. S. District Court at Lubbock, June 5, to a violation of the federal narcotic law and was sentenced to a term of eighteen months in the U. S. Public Health Service Hospital at Lexington, Ky. Dr. Irby W. Fires, Seagraves, following a similar plea, was placed on probation for a period of one day. This information was received from the U. S. Bureau of Narcotics.

Appointments to Southwestern Medical College.—New appointments to the faculty of the Southwestern Medical College of the Southwestern Medical Foundation, Dallas, include those of Dr. William F. Guerriero, recently of the Louisiana State University School of Medicine, New Orleans, to associate professor of obstetrics and gynecology, and Miss Ann Rucker as registrar of the medical college.

Changes in Health Officers.—Dr. Ernest W. Prothro has been named as the acting officer of the Laredo-Webb County Health Unit, Austin, succeeding Dr. Arthur E. Ballard, who resigned to take a similar position at Belton.—Dr. Will M. Miller has been named director of the Corsicana-Navarro County Health Department, succeeding Dr. Finnis E. Sadler, resigned.—David F. Bradley, A. Surg., U. S. Public Health Service Reserve, has been placed in charge of the Wichita County Health Unit.

Personal.—Dr. Paul Brindley, professor of pathology, University of Texas School of Medicine, Galveston, recently returned from a hospital tour in Costa Rica, Guatemala, Honduras and Mexico City, where he had been making special studies in tropical medicine under the auspices of the John and Mary R. Markle Foundation.—Dr. Paul M. Rattan, Dallas, has been elected medical director of the Great National Life Insurance Company to succeed the late Dr. Dan R. Murchison, Dallas.—Dr. and Mrs. Marvin C. Overton Sr., Lubbock, recently contributed \$20,000 toward the construction of a Methodist Student Center in Lubbock, it is reported.

UTAH

State Medical Meeting in Salt Lake.—The Utah State Medical Association will hold its annual meeting in Salt Lake City, August 25-26, under the presidency of Dr. James P. Kirby, Salt Lake City. Among the speakers on the program will be:

- Dr. Vincent L. Rees, Salt Lake City, Postoperative Pulmonary Complications
- Dr. Alfred C. Callister, Salt Lake City, Use of Tube Grafts in Deep Contracture Scars Resulting from Burns.
- Dr. Maxwell M. Wintrobe, Salt Lake City, Current Views on the Diagnosis and Treatment of Nutritional Deficiency.
- Dr. Clarence O. Sappington, Chicago, Meaning of Industrial Medicine, Hygiene and Health, Medical Aspects of Industrial Practice.
- Dr. Leroy U. Gardner, Saranac Lake, N. Y., Silicosis; Tuberculosis in Industry.
- Dr. Edward William Alton Ochsner, New Orleans, Neurovascular Lesions
- Brig Gen John M. Willis, M. C., Medical Administration and Hospitalization in a Service Command
- Col William J. Kennard, M. C., Experiences in the AAF Convalescent Program.
- Lieut Col Ambrose H. Storck, M. C., Abdominal Wounds—Management and Results in the Present War.
- Major John H. Clark, M. C., Medical Service on Guadalcanal.
- Capt. LeRoy J. Kleinsasser, M. C., Surgical Treatment of Peripheral Vascular Disease.
- Capt. Floyd J. Putney, M. C., Treatment of Lateral Sinus Thrombosis with Utilization of Penicillin
- Capt. Radford C. Tanzer, M. C., Plastic Surgery of War Injuries.
- Lieut Col. Leander W. Riba, M. C., Treatment of Certain Types of Urinary Obstruction.
- Major Max T. C. Schmitker, M. C., Osteomyelitis of the Skull—Its Treatment with Penicillin and Repair of Defects with Tantalum Plate.
- Major Clyde S. Roof, M. C., Indications for the Use of Various Intravenous Solutions
- Major Hazen B. Daines, M. C., Otitis Media.
- Lieut. Col Lauren H. Smith, M. C., Treatment in War Psychiatry.
- Lieut. Col John J. Loutzenheiser, M. C., Program of Occupational Rehabilitation in Relation to Medicine
- Major James R. Patrick, A. G. D., Use of Abilities and Skills in Morale and Rehabilitation.

WEST VIRGINIA

Hospitals Waive Fees for Tornado Victims.—The two Clarksburg hospitals, St. Mary's and Union Protestant, have waived all fees for rooms and services in connection with the treatment of victims of the tornado which devastated part of the city of Shinnston, June 23, taking a toll of seventy lives and sending more than 200 persons to the hospitals for treatment. Previously, on July 7, the Harrison County Medical Society voted unanimously to waive all fees for medical service (THE JOURNAL, July 22, p. 861). The decision of the authorities of the two hospitals means not only that there will be no charge for rooms but that fees for all usual services, including x-ray and laboratory, will also be waived.

Changes in Venereal Disease Bureau.—Dr. John C. Hume, U. S. Public Health Service, who has been serving as venereal disease control officer at Wilmington, N. C., has been detailed as acting director of the bureau of venereal diseases of the West Virginia Department of Health to succeed Dr. Leon A. S. Saler, U. S. Public Health Service, who has been transferred to Baltimore. Dr. Saler has been acting director of the bureau for the past three years. Dr. Wilfred H. Zwahlen, Logan, venereal disease control officer for the southwestern West Virginia District, has been transferred to the Kanawha Valley Medical Center at Charleston, replacing Dr. Lawrence M. Zell, who has been assigned to Wilmington, Del.

WYOMING

State Medical Election.—Dr. William Andrew Bunten, Cheyenne, was chosen president-elect of the Wyoming State Medical Society at its recent annual meeting and Dr. Thomas J. Riach, Casper, was installed as president. Dr. Marshall C. Keith, Cheyenne, is the secretary. The next annual session will be held at Casper.

GENERAL

Board of Technologists Announces Examinations.—The board of registry of the American Society of Clinical Pathologists announces that the fall examination for registration will be given on October 27. Applications must be submitted by September 1. Blanks may be obtained from Mrs. Ruth Drummond, Registry of Medical Technologists, Ball Memorial Hospital, Muncie, Ind.

Changes in Rockefeller Foundation.—Dr. Hugh H. Smith, a staff member of the International Health Division of the Rockefeller Foundation since 1930, has been appointed regional director of the United States, Canada and Mexico. Dr. Smith succeeds Dr. John A. Ferrell, who recently became medical director of the John and Mary R. Markle Foundation (THE JOURNAL, July 8, p. 730). Dr. Smith on September 1 will also become assistant director of the International Health Division. Dr. George K. Strode, who has been acting director of the International Health Division since June 1, will become director on September 1. At the same time Dr. Andrew J. Warren, assistant director in the division, will become associate director.

National Vitamin Foundation.—The organization of a National Vitamin Foundation was approved at a meeting of fifty representatives of all sections of the vitamin industry in New York, May 23. Its objectives would be to award grants for research in the vitamins or related fields, the dissemination of information to the vitamin trade, medical profession and public with respect to the quality, purpose and uses of vitamins, adoption of terminology and standards of publicity practices in connection with the sale of vitamins, and to confer and consult with medical societies, medical schools, health organizations, public health agencies and governmental agencies with respect to vitamins and the vitamin industry. The foundation would be administered by a board of trustees. Details of the organization are to be formulated by a committee of which Basil O'Connor, New York, president of the National Foundation for Infantile Paralysis, has been named chairman.

Special Society Elections.—Dr. Alfred I. Folsom, Dallas, was chosen president-elect of the American Urological Association at its meeting, June 22, and Dr. Clyde L. Deming, New Haven, Conn., was installed as president. Dr. Thomas D. Moore, Memphis, Tenn., is secretary and Dr. Herbert H. Howard, Boston, treasurer.—At the meeting of the medical section of the American Life Convention on June 23 in Chicago Dr. John M. Livingston, medical director of the Mutual Life Assurance Company of Canada, Waterloo, Ont., was elected chairman, succeeding Dr. Thomas H. Dickson, medical director of the Minnesota Mutual Life Insurance Company,

St. Paul. Dr. Benjamin F. Byrd, Nashville, medical director, National Life and Accident Insurance Company, was elected secretary.—Dr. Max Thorek, Chicago, was named president of the American Physicians' Art Association and Drs. George Harvey Agnew, Toronto, and William Rowland Davies, Scranton, Pa., vice presidents. Dr. Francis H. Redewill, San Francisco, was reelected secretary-treasurer.

Kellogg Foundation Creates Advisory Committees.—The W. K. Kellogg Foundation, Battle Creek, Mich., has recently appointed advisory committees in a number of fields that comprise its major interests to evaluate the present programs and activities, review the major financial requests presented to the foundation and develop worth while activities in their respective fields that are consistent with the policies and philosophy of the foundation. Committees have been named in the fields of public health, hospitals, nursing, education and libraries. Plans are being made to name one in medicine and one in public health engineering. Among the advisory committees already named are the following:

Public Health Advisory Committee

Dr. Wilson G. Smillie, New York.
Dr. Gregoire F. Amyot, Victoria, B. C., Canada.
Dr. Henry F. Helmholz, Rochester, Minn.
Dr. Hugh R. Leavell, Louisville, Ky.

Hospital Advisory Committee

Mr. James A. Hamilton, New Haven, Conn.
Dr. Robin C. Buerki, Philadelphia.
Lieut. Col. Basil C. MacLean, M. C.
Mr. John R. Mannix, Chicago.

Nursing Advisory Committee

Mrs. Leath Blaisdell Bryan, New York.
Miss Minnie E. Pohe, Washington.
Miss Ruth B. Freeman, Minneapolis.
Miss Lucile Petry, Washington.

The committees will meet two to four times a year in Battle Creek and will be available to the officers of the foundation on a consultation basis throughout the year.

Changes in Obstetric Board Requirements.—At the annual meeting of the American Board of Obstetrics and Gynecology in Pittsburgh June 7-13, approval was given to the waiver temporarily of the requirement of membership in the American Medical Association for men in the Army or Navy, especially for those who proceeded directly or almost so from hospital services into the army or navy service, with the condition that a statement is given of intention to join promptly when returned to civilian practice. The board also accepted a period of nine months as an academic year in satisfying its requirements for certain years of training. This is only for the duration, and even men who are not eligible for military service but who are nevertheless in hospitals where the accelerated program is in effect have been allowed to submit to the board this short-time period of training in lieu of our previous requirements. Beginning with the next written examination, which is scheduled to be held the first Saturday afternoon in February 1945, the board will limit the written examination to a maximum period of three hours, and in submitting case records at this time all candidates' case abstracts whose obstetric reports do not include measurements either by calipers and, as indicated, by acceptable x-ray pelvimetry will be considered incomplete. Prospective applicants or candidates in military service are urged to obtain from the office of the secretary a copy of the "Record of Professional Assignments for Prospective Applicants for Certification by Specialty Boards," which will be supplied on request. This record was compiled by the Advisory Board for Medical Specialties and is approved by the Offices of the Surgeons General, having been recommended to the services in circular letter number 76 from the War Department Army Service Forces and referred to as the Medical Officer's Service Record. These will enable prospective applicants and candidates to keep an accurate record of work done while in military service and should be submitted with the candidate's application, so that the credentials committee may have this information available in reviewing the application. Applications and bulletins of detailed information regarding the board requirements will be sent on request to Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh 6, Pa. Applications must be in the office of the secretary by November 15, ninety days in advance of the examination date. The time and place of the spring 1945 (part II) examinations will be announced later.

CORRECTION

Studies in Prothrombin.—In the article by Shapiro with this title in THE JOURNAL June 24, in the first paragraph under "Results" on page 547 the dosage of acetylsalicylic acid should have been 6 Gm. instead of 6 mg., as given.

Government Services

Lanham Funds for Child Care

A total of \$221,403 Lanham Act funds has been allocated by the Federal Works Agency to seventeen "war impacted" localities in twelve states to carry on child care, recreation and school services. The projects are located in California, Colorado, Georgia, Kentucky, Michigan, Montana, New Hampshire, New Jersey, New York, Ohio, Oregon and Washington.

Marian Russell Named Medical Social Consultant

Marian E. Russell, executive secretary of the American Association of Medical Social Workers, has been appointed medical social consultant in the office of vocational rehabilitation, Federal Security Agency. Miss Russell will aid in the formulation and development of the medical social aspects of the vocational rehabilitation program, especially as they relate to the physical restoration of disabled persons. She will provide consultant and technical services for the federal office and for the state divisions of vocational rehabilitation and the state agencies for the blind.

Dr. Daily Leaves Health Service Division

Dr. Edwin F. Daily, director of the division of health services of the Children's Bureau, U. S. Department of Labor, has been granted leave to serve with the Army of the United States to assist in reestablishing civilian medical and hospital services in some of the liberated countries. Dr. Abram L. Van Horn has been appointed director of the division of health services and Dr. Betty Huse has been named to succeed Dr. Van Horn as assistant director for crippled children in the division. Dr. Daily has been in charge of the emergency maternity and infant care program administered by the Children's Bureau, under which medical, nursing and hospital care are given servicemen's wives and infants. Dr. Van Horn graduated at the University of Michigan Medical School, Ann Arbor, in 1928 and before joining the Children's Bureau in 1936 served as chief of the bureau of child hygiene of the Ohio Department of Health. Dr. Huse has been associated with the division of health services since 1939.

Additional Fellowships for Health Education Available

The U. S. Public Health Service announces that, through the cooperation of the National Foundation for Infantile Paralysis and the W. K. Kellogg Foundation, additional fellowships for health education are now available for qualified men of certain Selective Service classifications as well as for women. Funds for the fellowships have been made available through the National Foundation for Infantile Paralysis, Inc., and the W. K. Kellogg Foundation for the collegiate fall term of 1944. The fellowships have been established to meet the present and future needs for trained health educators in schools, communities and local, state and federal health departments. Women between the ages of 19 and 40 inclusive who are United States citizens and men who are United States citizens, 30 years or over, or whose Selective Service classification is 4F or 1AL, and who possess a bachelor's degree from a recognized college or university may apply. Candidates should have a skilful knowledge of the use of the English language, courses in the physical and biologic sciences, social sciences, education and educational psychology plus the ability to work effectively with people. Fellowships will lead to a master of science degree in public health. They will provide for twelve months' training in public health education, three months of which will be supervised field experience; \$100 a month for twelve months, full tuition and travel. Training will be given either at the University of North Carolina, Yale University or University of Michigan. Forms for application for fellowships may be obtained from the Surgeon General, U. S. Public Health Service, Washington 14, D. C. Applications must be accompanied by a transcript of college credits and a small photograph and must be in the office of the Surgeon General not later than August 15.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 24, 1944.

Penicillin in the Treatment of War Wounds

For the guidance of those who treat battle casualties, the Penicillin Clinical Trials Committee of the Medical Research Council has prepared a memorandum. It points out that penicillin has three properties which make it an ideal antiseptic: it inhibits the growth of bacteria in extremely high dilutions, it has almost no toxicity and its action is unimpaired by serum, blood or pus. No other substance has these qualities in anything like the same degree, and clinical trials are fully in accord with the expectations aroused. Applied locally, it is immensely superior to the sulfonamides as an antiseptic for three reasons: it is a much more potent bacteriostatic, it acts efficiently on large as well as small quantities of bacteria and its action is not inhibited by pus. It also is used systemically. A solution is injected intravenously or intramuscularly, with the object of maintaining a bacteriostatic concentration in the blood. This treatment may be necessary for extensive and deep seated infections and for septicemia, but under present conditions it should not be used if the responsible organism is susceptible to sulfonamide treatment.

The action of penicillin on bacteria is highly selective. Gram positive cocci (*Staphylococcus aureus*, *Streptococcus pyogenes*, other streptococci except enterococcus, and pneumococcus), Clostridia, *Neisseria*, *Bacillus anthracis* and *Corynebacterium diphtheriae* are susceptible. *Proteus vulgaris*, *Pseudomonas aeruginosa*, the coli-typhoid-dysentery group, *Pasteurella*, *Brucella*, *Haemophilus*, *Enterococcus* and the tubercle bacillus are insusceptible. From the point of view of wound treatment the principal pyogenic cocci and the whole of the gas gangrene group are highly susceptible, while all gram negative bacteria, except gonococci and meningococci, are resistant. The only common pathogens among the gram negative are *Proteus*, *Pseudomonas aeruginosa* and coliform bacilli.

The local application of penicillin through a tube inserted into the wound is the best and least wasteful method. In most cases the solution should be injected at twelve hour intervals. Open wounds may be sprayed, although the use of a powder or cream is generally preferred. Penicillin in a strength of 1,000 to 5,000 units per cubic centimeter has been injected into abscess cavities following aspiration of pus. Penicillin cream may be used for surface wounds which cannot be closed or for skin infections. Penicillin powder may also be used for wounds which cannot be closed, or it may be applied preparatory to closure.

Malnutrition and Disease in India

The physiologist A. V. Hill, F.R.S., has returned from a mission to India. In a letter to the *Times* he deals with nutrition and disease in that country. He says that there has been much fruitless recrimination about the recent famine in Bengal and that instead of arguing about the symptoms we should face the facts. The mortality in India at all ages is four to eight times ours; the expectation of life at birth is 26 years against our 62; one half those born reach 22 years against 69 per cent with us. Ill health is correspondingly prevalent; between 100 and 200 millions out of nearly 400 suffer from malaria every year. Tuberculosis, cholera, smallpox, plague, guinea worm and filarial infection, yaws, kala-azar and many other diseases take their toll of life and health. A large part of the population—according to any reasonable standard more than half—is underfed. Of these many millions live on the verge of starvation. Chronic malnutrition acts with disease in a vicious circle. In spite of all this the population of India

increases by 6 million annually, or at the rate of about 16 per thousand. There is nothing new in this malnutrition and disease in India. Indeed, the present population trend indicates that the effect is less than it has been in the past. The population has increased from 280 millions in 1900 to 389 millions at the last computation. This increase has been steady except for a drop in 1918-1919 due to an epidemic of influenza—a striking example of the effect of disease on a chronically underfed population.

Already about 50 per cent more food is required in India, Professor Hill states. He asks "Can agriculture by present methods catch up and cope with the expanding population?" He thinks it is idle to talk of family limitation except as a long term policy, and the present need is acute. The factor of safety in India is very low. Disorganization or disorder would lead to a frightful tragedy. Cooperation of all men of good will in the wholehearted development of India's resources by modern, scientific methods is the only hope of averting disaster, Professor Hill believes. It might be added that India is a striking example of the truth of the doctrine of Malthus, which it is the fashion in some quarters to scoff at just now. Malthus taught that population always tends to outgrow the means of subsistence and if not checked by prudent means must be checked by the positive means of famine and disease. British rule has provided a safety of life unknown previously in India and has introduced modern methods of industry in some places. The result has been a great increase of population, but for this very reason the malnutrition of the vast millions could not be mitigated.

Speed in Treatment of the Wounded

On June 6, the opening day of the landing of allied troops in France, some casualties were already back in Britain. The speed with which the wounded are succored has often been noted as a noteworthy feature of this war. For example, it is claimed that in North Africa the lives of at least 5,000 wounded were saved by one thing only—speed. There was speed in picking them up when they were hit, speed in getting them to a first aid station, speed in getting them to the hospital and speed in getting them to a base. A few hundred yards behind the line is the regimental aid post. Here are medical officers and trained orderlies. If blood transfusion is necessary, it can be done here. Even an operation can be performed if necessary. Usually, however, the wounded man is given an injection of morphine and within thirty minutes is 2 miles back at a field dressing station. This is usually a sandbagged, canvas shelter, but it may be set up in a commandeered building. Its equipment is carried on a 3 ton lorry. There are two medical officers and five assistants. Antitetanus injections, blood transfusion or saline and dextrose injections are done here, and even after major operations can be performed. In close radio contact is the field ambulance with at least half a dozen beds. The wounded man does not stop here long but is taken to the casualty clearing station about 20 miles behind the line, which he reaches in not more than two hours from the time he is hit. Here the diagnosis is finally established and he is scheduled for resuscitation, operation or further evacuation. From the casualty clearing station he goes to the general hospital, established at a railhead either in a commandeered building or in a marquee. Here all the resources of medical science, including x-rays, are available. In case of urgency he may travel to the general hospital by air. However he travels, he is nursed on the way, usually by women.

The Treatment of Gas Gangrene

As fighting extends in Europe, gas gangrene becomes a more likely complication of wounds. The Army Medical Department has therefore issued to every medical and dental officer a bulletin laying down the treatment to be followed in the light of the important experience gained in the present

war. Gas gangrene may follow trivial injuries but is most likely in cases of interference with the main blood supply of a limb, extensive laceration of muscle, particularly of the thigh, buttock or shoulder, compound fracture of the long bones, especially of the lower limb, foreign bodies carried deeply, prolonged application of a tourniquet or tight packing, application of a tight plaster or even a tight dressing to an inadequately excised wound and delay in surgical treatment. In all such cases the following prophylaxis is laid down: Polyvalent gas antitoxin 22,500 units, with the usual dose of tetanus antitoxin, should be injected intramuscularly in forward medical units, but when intravenous administration is practicable it is preferable. The usual sulfonamide medication should be followed both locally and by mouth. But wound excision is the most important prophylactic and should never be unnecessarily delayed.

If gas gangrene is established, speed is essential to save life. Preoperative measures consist of (1) a dose of 60,000 units of polyvalent gas gangrene antitoxin given intravenously by syringe (if the toxemia is very severe 100,000 units should be given); (2) sulfathiazole 3 Gm., which may be given during transfusion, and (3) transfusion of 1 or 2 pints of blood. Occasionally blood may be contraindicated; in such cases, or if blood is not available, plasma may be given. As a general rule if the patient is too ill for operation he is unlikely ever to be in a better condition than following administration of 100,000 units of antitoxin in 1 or 2 pints of blood.

Removal of the infection by complete excision of the affected tissues is essential. Amputation is by no means a routine necessity, though frequently it is inevitable because of vascular damage. Where only one muscle or one group of muscles is involved, that muscle or group should be extirpated from origin to insertion. Great care must be taken not to damage the blood supply to adjacent muscles. If radical surgery is impossible, either because of the site of infection or because of the condition of the patient, the muscle sheaths and muscles must be freely incised to relieve tension, and intensive therapy with antitoxin and drugs pursued. The best anesthetic is a small dose of pentothal sodium followed by nitrous oxide and oxygen. Chloroform and ether must be avoided. From necessarily limited experience, it seems that penicillin will prove of great value in the treatment of gas gangrene. The initial dose should be at least 30,000 units of sodium penicillin intramuscularly. Three hours later it should be given at the rate of 5,000 to 6,000 units by intravenous drip.

Nutrition Research Unit for the British Colonies

With the object of improving the health of the British colonial peoples a research organization has been formed in London. It is called the Human Nutrition Research Unit, and it has been established by the Medical Research Council with Dr. B. S. Platt as director. The unit is already engaged in important investigations affecting colonial nutrition and is offering hospitality for study and research to nutrition workers from the colonies. It will soon be ready to advise colonial governments on technical questions. The formation of the unit is regarded as only the first step toward a wider organization, which, it is hoped, will include in its scope both teaching and research and will cooperate closely with workers in the colonial dependencies.

Penicillin Workers Honored by the Government

Alexander Fleming, F.R.S., professor of bacteriology at the University of London, discoverer of penicillin, and H. W. Florey, professor of pathology at Oxford University, developer of the use of penicillin in medicine, have been knighted for their services to medical science.

BOLIVIA

(From Our Regular Correspondent)

May 6, 1944.

United States Cooperation with Bolivian Health Service

Under the direction of Dr. George Bergman of Los Angeles the Servicio Cooperativo Interamericano de Salud Publica, organized by the coordinator for inter-American affairs, is cooperating directly with the Bolivian health minister to carry on a vast public health program throughout Bolivia. In 1942 and 1943, \$1,000,000 was made available to support the Bolivian health program; this amount is 60 per cent of the whole Bolivian health budget for a year. The service bought a large building in the center of La Paz to establish besides its own offices a public health center, a training center for nurses, a large conference room and offices for the Ministry of Health. Already an important health center is being conducted in the overcrowded suburb Villa Victoria, where sanitary work is of utmost importance because of a lack of sewerage facilities, unhygienic dwellings and lack of doctors. The nurses there gave excellent service during the last typhoid epidemic by large scale vaccination. Assistance with a training school for nurses is being given in La Paz. In Bolivia's second largest town, Cochabamba, a health center is operating and a large central laboratory is nearing completion. In the tropical Beni district the service is operating a provisional 10 bed hospital. In Guayaramerin, on the Brazilian border, a temporary 12 bed hospital is being operated at the present time. In both Riberalta and Guayaramerin modern hospitals of 30 and 20 beds respectively are in process of construction. The service owns four river boats in the Amazonas district, providing medical attention to these important rubber producing regions. In the same district it cooperates also with the U. S. owned Rubber Development Company in providing doctors and sanitary engineers for this essential production. Also it controls the medical services and hospitals in several mines in the Cordillera region.

Direct cooperation with local physicians is effected by offering vaccines and drugs that are hard to get and also educational films on tuberculosis, venereal diseases, cancer and other public health problems.

The servicio has been operating only a year and a half and plans to build other health centers, one in a suburb of La Paz and others in the district capitals Oruro and Potosi. It also plans to assist in a nurse's training school in Cochabamba.

The personnel of the service is composed of Bolivian as well as some foreign and especially American practitioners and employees.

Of utmost importance is the servicio's large scale sanitation program in the vast malaria infested regions and a more effective control of communicable diseases such as typhus, typhoid, relapsing fever, whooping cough, variolosis and leprosy.

A number of scholarships have been offered and granted to various doctors and other persons by the Health and Sanitation Division of the Coordinator's Office in Washington, D. C., and some of these have already entered their specialized training. The Bolivian minister for health and labor has left for a Washington, D. C., health conference to increase cooperation.

Marriages

CHARLES RICHARD BATES JR., Shreveport, La., to DR. HARRIET ANN HEGAR of Edinburg, Texas, in El Paso, May 19.
GEORGE CONWELL SMITH JR., Kaufman, Texas, to Miss Frances Grisham in Memphis, Tenn., June 14.

WILLIAM M. LA ZEBNIK, Jackson, Mich., to Miss Mayda Chosed of Merrick, L. I., N. Y., in March.

Deaths

William E. Parke ☉ Miami Beach, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1886; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; member of the Medical Society of the State of Pennsylvania; past president of the Obstetrical Society of Philadelphia and of the Association of Ex-Residents and Resident Physicians of the Philadelphia General Hospital; fellow of the American College of Surgeons and the College of Physicians of Philadelphia; served on the staffs of the Hospital of the Protestant Episcopal Church, Frankford Hospital, Presbyterian Hospital, St. Mary's Hospital, Kensington Hospital for Women and the Northern Dispensary, Philadelphia, died June 26, aged 82.

Henry Barnard Hitz ☉ Milwaukee; Columbian University Medical Department, Washington, D. C., 1891; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; formerly professor of laryngology and rhinology at the Wisconsin College of Physicians and Surgeons; an adjutant at the Milwaukee Base Hospital number 22 near Bordeaux, France, during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; on the staffs of the Columbia and Milwaukee Children's hospitals; vice chief of staff, Milwaukee Hospital, where he died April 6, aged 76, of coronary occlusion and general arteriosclerosis.

Charles Bradley Pinkham, San Francisco; New York Homeopathic Medical College and Hospital, New York, 1899; member of the California Medical Association; retired Feb. 1, 1943 as secretary-treasurer of the California State Board of Medical Examiners, a position he had held since 1913; served as a member of the board; in 1930 president of the Federation of State Medical Boards of the United States; at one time professor of anatomy at the Hahnemann Medical College of the Pacific; formerly chief surgeon of the San Francisco emergency hospitals; died at his home in Atherton, Calif., July 14, aged 71.

John Reid Andrews, Bedford, Ind.; Kentucky School of Medicine, Louisville, 1892; for one term mayor; county clerk of Lawrence County for eight years; secretary of the chamber of commerce; a charter member, past president and secretary of the Kiwanis Club; died May 25, aged 72, of chronic myocarditis.

James Aloysius Barrett, New Bedford, Mass.; Maryland Medical College, Baltimore, 1910; member of the Massachusetts Medical Society and the New England Roentgen Ray Society; died in St. Luke's Hospital April 28, aged 58, of coronary thrombosis.

William Lee Bishop, Portland, Ore.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the Oregon State Medical Society; formerly editor of the *Medical Sentinel*; died in the Hahnemann Hospital April 26, aged 71, of hypertensive cardiorenal disease and encephalopathy.

John Charles Bowman, Genoa, Ohio; Columbus Medical College, 1890; died May 30, aged 81, of coronary disease.

Ervin Davis Brooks, Kalamazoo, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1885; member of the Michigan State Medical Society; died in the Kalamazoo State Hospital April 14, aged 89.

Alexander Eugene Burke ☉ Philadelphia; Georgetown University School of Medicine, Washington, D. C., 1918; diplomate of the National Board of Medical Examiners; fellow of the American College of Surgeons; formerly member of the state board of medical education and licensure; served in the medical corps of the U. S. Navy during World War I; gynecologist, St. Joseph's Hospital from 1929 to 1935 and later surgeon; chief surgeon, Fitzgerald-Mercy Hospital, Darby, Pa., and St. Agnes Hospital; died May 19, aged 48.

Martin Loren Cantrell, Marked Tree, Ark.; University of Tennessee College of Medicine, Memphis, 1931; member of the Arkansas Medical Society; served as secretary of the Craighead-Poinsett Counties Medical Society; surgeon for the Frisco Railroad; died in the Baptist Memorial Hospital, Memphis, Tenn., April 19, aged 39, of nephritis and cardiovascular disease.

Archie F. Caraway, Gulfport, Miss.; Mississippi Medical College, Meridian, 1910; on the staff of the King's Daughters' Hospital; died May 17, aged 63, of postencephalitic complications.

Edgar Christy ☉ Glenwood, Iowa; University of Nebraska College of Medicine, Omaha, 1907; life member of the Iowa State Medical Society; past president of the Mills County Medical Society; a captain in the medical corps of the U. S. Army during World War I; a member of the medical reserve corps on the staff of the Jennie Edmundson Memorial Hospital, Council Bluffs; since 1941 assistant superintendent of the Glenwood State School; died July 5, aged 63, of coronary occlusion.

Edwin Davis ☉ Fort Worth, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, Fort Worth, 1911; president of the Tarrant County Medical Society in 1923; one of the first members of the Children's Hospital staff and once a member of the staff of a number of hospitals in Fort Worth; for many years served as chief of staff of the department of gynecology at the City-County Hospital; a member of the Kiwanis Club; died April 6, aged 69, of pulmonary embolism due to suppurative pneumonitis.

John Clayton Davis, Little Rock, Ark.; Memphis (Tenn.) Hospital Medical College, 1903; member of the Arkansas Medical Society; assistant professor of neuropsychiatry at the University of Arkansas School of Medicine; served as president of the Poinsett County Board of Health; for many years on the staff and at one time superintendent of the State Hospital; died April 30, aged 71, of coronary disease.

Frank Adams Ewers, Akron, Ohio; Jefferson Medical College of Philadelphia, 1905; member of the Ohio State Medical Association; died March 9, aged 65.

Leon Feingold, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; died in the Grant Hospital April 12, aged 63.

Charles H. Fulbright, St. James, Mo.; Missouri Medical College, St. Louis, 1889; member of the Missouri State Medical Association; died April 18, aged 78, of chronic hypertension.

Sydney Ormond Goldan ☉ New York; Columbia University College of Physicians and Surgeons, New York, 1896; died April 23, aged 74.

Donald Alexander Graham ☉ Denver; University of Nebraska College of Medicine, Omaha, 1923; examining physician for draft board number 9; on the staffs of the Presbyterian and St. Anthony's hospitals; died April 21, aged 48, of coronary occlusion.

Rudolph Melvin Gunderson, Lake Park, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1907; company physician for the local division of the Northern Pacific Railway; died April 2, aged 64, of heart disease.

Charles Reginald Hargrove, Marshall, Texas; University of Louisiana Medical Department, New Orleans, 1883; honorary member of the State Medical Association of Texas; past president of the Harrison County Medical Society and the Tri-State Medical Society; a member of the council of defense during World War I; served as city health officer and as local surgeon of the Gulf Coast and Santa Fe Railway; died March 26, aged 84, of heart disease.

Paul Douglas Hayman ☉ Huntington, W. Va.; Medical College of Virginia, Richmond, 1932; served an internship and later a residency at the White Cross Hospital, Columbus, Ohio; died May 1, aged 36, of glioma.

Albert E. Holley, St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1897; member of the Missouri State Medical Association; served as county physician and county health officer; on the staffs of St. Joseph's Hospital and the Missouri Methodist Hospital, where he died April 28, aged 79, of carcinoma of the pylorus and stomach.

Nathan Asbury Hughes, St. Louis; Hospital Medical College, Eclectic, Atlanta, 1910; died April 29, aged 66, of heart disease.

Herbert Shattuck Johnson, Stoneham, Mass.; Harvard Medical School, Boston, 1883; formerly practiced in Malden, where he was a trustee of the Malden Library, school physician and on the staff of the Malden Hospital; associated with the E. L. Patch Company, manufacturers of pharmaceutical supplies; died April 29, aged 87, of uremia.

John M. F. Kearney, Louisville, Ky.; University of Louisville Medical Department, 1895; member of the Kentucky State Medical Association; county coroner; died in St. Joseph Infirmary March 5, aged 68.

Charlie A. Kelley, Lilburn, Ga.; Atlanta College of Physicians and Surgeons, 1909; died in an Atlanta hospital March 18, aged 71, of subarachnoid hemorrhage.

Edward Brown Kinder, St. Louis; St. Louis College of Physicians and Surgeons, 1891; formerly professor of bacteriology, pathology and histology at his alma mater; found dead in bed May 29, aged 79, of coronary sclerosis.

Charles Albert Kittredge, Beacon, N. Y.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; died May 23, aged 72, of coronary thrombosis.

Frederick Herman Koepke, Watsonville, Calif.; Cooper Medical College, San Francisco, 1903; member of the California Medical Association; died May 18, aged 63, of heart disease.

William Steven Lacy, Jacksonville, Texas; Vanderbilt University School of Medicine, Nashville, 1883; past president of the Smith County Medical Society; died April 4, aged 85, of acute cardiac dilatation.

Oscar Bernhardt Lambert, Milwaukee; Northwestern University Medical School, Chicago, 1907; died in the Columbia Hospital May 31, aged 62, of carcinoma of the left lung.

Regina Ledbetter, Clarksville, Tenn.; University of Tennessee College of Medicine, Memphis, 1941; served an internship at the Women and Children's Hospital, Chicago; died May 12, aged 28, of rheumatic heart disease.

Arthur Lester, New York; Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau, Prussia, Germany, 1921; resident physician at the Sunnyside Hospital, Staten Island, where he died May 8, aged 50, of heart disease.

Victor Fawcett Long, La Porte, Ind.; Rush Medical College, Chicago, 1914; died in Fairview Hospital, May 7, aged 54, of pulmonary embolism after amputation of the leg.

Thomas F. Loughlin, Hartford, Wis.; Marquette University School of Medicine, Milwaukee, 1915; served during World War I; died in St. Mary's Hospital, Milwaukee, March 17, aged 55, of coronary occlusion.

John Francis Lowney, Fall River, Mass.; Tufts College Medical School, Boston, 1900; elected president of the Fall River Medical Society in 1907; died February 19, aged 71, of chronic interstitial nephritis and coronary sclerosis.

Frederick Livingstone MacDonald, Waltham, Mass.; University of Vermont College of Medicine, Burlington, 1907; formerly instructor in otolaryngology at the Tufts College Medical School, Boston; for two terms mayor of Waltham; served on the staffs of the Boston City Hospital and Massachusetts General Hospital, Boston, and the Waltham Hospital; died May 24, aged 65, of carcinoma of the stomach.

John Allen McGee, Virginia, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1896; member of the Illinois State Medical Society; past president and secretary of the Cass County Medical Society; served as president of the local board of health; served during World War I; major, medical reserve corps, U. S. Army, not on active duty; on the staffs of the Memorial and St. John's hospitals, Springfield, and the Passavant Memorial Hospital, Jacksonville; died May 6, aged 71, of coronary thrombosis.

Charles A. McNeil, Sedalia, Mo.; St. Louis University School of Medicine, 1905; formerly on the staff of the Missouri, Kansas and Texas Railroad Hospital; served as president of the Union Savings Bank; died May 17, aged 68, of coronary embolism.

Max Mahrer, Cleveland; Western Reserve University School of Medicine, Cleveland, 1917; served during World War I; died May 3, aged 50, of coronary thrombosis.

Emil Maisner, New York; Long Island College Hospital, Brooklyn, 1894; at one time member of the board of health of Union Hill, N. J.; at one time on the staff of the North Hudson Hospital, Weehawken, N. J.; died in the Fordham Hospital May 14, aged 77, of pneumonia and heart disease.

Olin May, Lubbock, Texas; Medical Department of Grant University, Chattanooga, Tenn., 1894; died March 12, aged 83, of cerebral hemorrhage.

William May, Farber, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; died in the Pike County Hospital, Louisiana, April 22, aged 93, of myocarditis.

John Bertrand Meury, Brooklyn; Long Island College Hospital, Brooklyn, 1896; formerly on the staffs of the Eastern District Trinity and Bushwick hospitals; died in the Eye and Ear Hospital May 13, aged 71, of uremia and heart disease.

Leo Clement Mundy, Wilkes-Barre, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; fellow of the American College of Surgeons; state senator;

at one time Democratic county chairman and collector of internal revenue for the middle district of Pennsylvania; served overseas during World War I; received the Distinguished Service Cross for heroism in caring for wounded soldiers under heavy enemy fire; chief, surgical staff, Mercy Hospital, where he died June 11, aged 57, of coronary occlusion.

Hildus Augustinus O. Nass, Mabel, Minn.; State University of Iowa College of Medicine, Iowa City, 1898; died in the Lutheran Hospital, La Crosse, Wis., March 27, aged 72, of gastric carcinoma.

Clement Channing Nevin, Edgartown, Mass.; Yale University School of Medicine, New Haven, 1908; served as acting assistant surgeon in the U. S. Public Health Service; died March 12, aged 61, of acute hepatitis and chronic osteomyelitis of the tibia.

Isaac Otis Newell, Milwaukee; Rush Medical College, Chicago, 1892; died April 7, aged 75, of coronary occlusion.

Deno Francis O'Connor, Chicago; Loyola University School of Medicine, Chicago, 1917; member of the Illinois State Medical Society; formerly clinical assistant and clinical associate in otolaryngology at his alma mater; fellow of the American College of Surgeons; on the senior staff of the Mercy Hospital; served during World War I; died in the Madison General Hospital, Madison, Wis., April 18, aged 52, of cirrhosis of the liver.

John Jay Ogg, Marshall, Minn.; Barnes Medical College, St. Louis, 1903; died March 22, aged 86, of cardiovascular degeneration.

Daniel Joseph O'Loughlin, Kankakee, Ill.; Northwestern University Medical School, Chicago, 1904; on the staff of St. Mary's Hospital, where he died May 8, aged 63, of hypertensive heart disease and anterior wall infarction.

William Wallace Osgood, Muskogee, Okla.; Cleveland University of Medicine and Surgery, 1896; served as a member of the state board of medical examiners; died in Fort Smith, Ark., March 6, aged 74, of heart disease.

James Wight Packard, Rockton, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; formerly on the staff of the Wesley Memorial Hospital, Chicago; died in the Municipal Hospital, Beloit, Wis., May 24, aged 80, of cerebral arteriosclerosis.

Mary McDermott Penny, Saugus, Mass.; Tufts College Medical School, Boston, 1910; member of the Massachusetts Medical Society; formerly chairman of the public health commission; on the courtesy staff of the Lynn Hospital, Lynn; one of the Saugus school physicians; medical examiner for women at the Y. W. C. A.; died in Falmouth April 17, aged 73, of heart disease.

Edward Henry Peterson, Grand Junction, Colo.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1919; served as county physician; formerly member of the staff and secretary of St. Mary's Hospital; died April 13, aged 63, of coronary thrombosis and pneumoconiosis.

Frank Sibbald Pike, Detroit; University of Louisville (Ky.) Medical Department, 1910; at one time secretary of the Toombs County (Ga.) Medical Society; for many years associated with Parke, Davis & Company; died in the Henry Ford Hospital May 2, aged 54, of cerebral hemorrhage.

James Kells Pollock, South Mountain, Pa.; Jefferson Medical College of Philadelphia, 1928; resident physician at the Pennsylvania State Tuberculosis Sanatorium number 1, where he died April 29, aged 42, of pulmonary tuberculosis.

Francis James Pomainville, Wisconsin Rapids, Wis.; Marquette University School of Medicine, Milwaukee, 1929; died March 21, aged 42, of injuries received in an automobile accident.

Marion Henderson Powers, Weirton, W. Va.; Jefferson Medical College of Philadelphia, 1907; served overseas with Base Hospital number 14 during World War I and was discharged with rank of captain; a member of the staffs of the Ohio Valley and Gill Memorial hospitals, Steubenville, Ohio; died at McCaza, Que., Canada, May 4, aged 62, of coronary thrombosis.

Hal Henslee Puckett, Alice, Texas; Memphis (Tenn.) Hospital Medical College, 1910; member of the State Medical Association of Texas and the Texas Public Health Association; past president of the West Virginia Public Health Association; formerly director of the Fayette County Health Unit in Fayetteville, W. Va.; director of the Jim Wells-Duval County Health Unit; served as director of the health units of Floyd, Tom Green and Bowie counties; died April 15, aged 59, of coronary occlusion.

Fletcher Stanhope Pyle, San Francisco; College of Physicians and Surgeons of San Francisco, 1905; on the staffs of St. Mary's Hospital and St. Joseph's Hospital, where he died April 10, aged 73, of generalized arteriosclerosis, hemiplegia and myocarditis.

John Harrison Quayle, Miami, Fla.; Cleveland University of Medicine and Surgery, 1895; University of Wooster Medical Department, Cleveland, 1904; a life member of the Cleveland Chamber of Commerce; died in St. Francis Hospital April 25, aged 69, of carcinoma of the head of the pancreas.

Charles E. Rariden, Bedford, Ind.; Kentucky School of Medicine, Louisville, 1880; member of the Indiana State Medical Association; died in Dalton, Ga., April 29, aged 87, of coronary thrombosis.

Carrie Turner Reid, Indianapolis; Indiana Medical College, School of Medicine of Purdue University Indianapolis, 1906; died in the Methodist Hospital May 11, aged 65, of intestinal obstruction.

Robert Noel Ritchie Ⓢ Rochester, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1918; associate professor of obstetrics and gynecology at the University of Rochester School of Medicine and Dentistry; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; at one time superintendent of the Montreal Maternity Hospital and on the staff of the Royal Victoria Hospital, Montreal; on the staff of the Strong Memorial Hospital, where he died May 8, aged 49, of heart disease.

Monte Valient Robinson, Chicago; St. Louis College of Physicians and Surgeons, 1918; veteran of the Spanish-American War; a first lieutenant in the medical corps, U. S. Army, in 1918 and a captain in the officers reserve corps, U. S. Army, in 1919; owner of a clinical laboratory; died May 11, aged 64, of carcinoma of the liver.

Ola Raymond Rooks Ⓢ Trenton, Mo.; University Medical College of Kansas City, Mo., 1909; past president of the Grundy-Daviess Counties Medical Society; president of the board of education; county health officer; formerly on the staff of the State Hospital number 3, Nevada; served as president of the Kiwanis Club; president of the staff of the Wright Memorial Hospital, where he died April 5, aged 57, of acute coronary thrombosis.

Samuel Rothenberg, Newark, N. J.; Long Island College Hospital, Brooklyn, 1916; member of the Medical Society of New Jersey; fellow of the American College of Surgeons; died April 29, aged 51.

Forrest Grimm Schaeffer Ⓢ Allentown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; fellow of the American College of Surgeons; chief of the department of obstetrics, Allentown Hospital; died May 10, aged 61, of coronary occlusion.

George Henry Scott, Boston; Tufts College Medical School, Boston, 1909; died March 24, aged 65.

George C. Smith, Poseyville, Ind.; Jefferson Medical College of Philadelphia, 1891; member of the Indiana State Medical Association; died in the Welborn-Baptist Memorial Hospital, Evansville, May 2, aged 80, of pneumonia and angina pectoris.

Elmer Leslie Smythe Ⓢ Pasadena, Calif.; California Eclectic Medical College, Los Angeles, 1914; member of the Washington State Medical Association; formerly with the Civilian Conservation Corps in Sanger, Capitola and Yosemite National Park; served on the staff of the U. S. Veterans Hos-

pital number 59 in Tacoma, Wash.; died in the Veterans Administration Facility, West Los Angeles, April 19, aged 61, of carcinoma of the right kidney and bronchopneumonia.

Clarence Richard Spradling, Hallam, Neb.; Eclectic Medical College, Cincinnati, 1916; member of the Nebraska State Medical Association; on the staff of St. Elizabeth Hospital, Lincoln; died April 22, aged 53, of carcinoma.

Farkas Wolfgang Steiner Ⓢ Akron, Ohio; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása, Budapest, Hungary, 1912; a medical officer in the Hungarian army during World War I; on the staffs of St. Thomas, Peoples and City hospitals; president of the Zionist Organization of America; died May 5, aged 56, of carcinoma.

Marion Russell Thomas, Savannah, Ga.; University of Maryland School of Medicine, Baltimore, 1902; member of the Medical Association of Georgia; chief surgeon of the Southern Railway and local physician for the Metropolitan Life Insurance Company; president of the staff of Oglethorpe Sanatorium, where he died April 8, aged 66, of carcinoma.

Jacob Hawkins Tucker, Kansas City, Mo.; Kansas City College of Medicine and Surgery, 1923; died in the Kansas City General Hospital April 29, aged 76, of bronchopneumonia.

George T. Veal, Dallas, Texas; University of Louisville (Ky.) Medical Department, 1883; at one time mayor of Ros-

well, N. M., and member of the legislature; died in Fabens April 22, aged 83, of pulmonary hemorrhage and thrombosis.

Claude Ebenew Ward, Hartland, Vt.; University of Louisville (Ky.) Medical Department, 1905; served during World War I; died in the Mary Hitchcock Hospital, Hanover, N. H., April 26, aged 67.

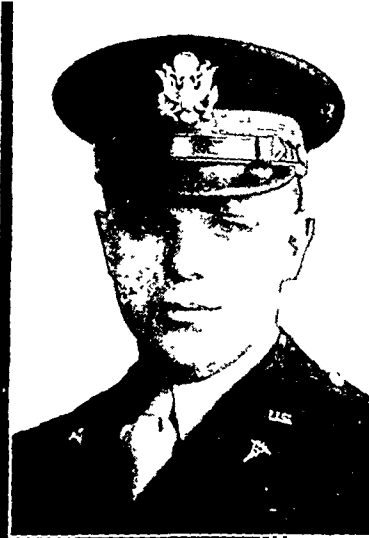
Edgar Kirby Ward, Oakland, Calif.; College of Physicians and Surgeons of San Francisco, 1902; Northwestern University Medical School, Chicago, 1908; member of the California Medical Association; on the staff of the East Oakland Hospital; died April 26, aged 72, of coronary disease.

Mary Rhoda Wetmore, Allegan, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898; died in the Allegan Health Center April 13, aged 74.

KILLED IN ACTION

Frank James Kolumbar Jr., Berwyn, Ill.; Chicago Medical School, 1942; served an internship at the North Chicago Hospital, Chicago; commissioned a first lieutenant in the medical corps, Army of the United States, on Oct. 12, 1942; killed in action in the Marshall Islands February 21, aged 29.

Arthur William Wilkinson, Phoenix, Ariz.; Harvard Medical School, Boston, 1938; diplomate of the National Board of Medical Examiners; served an internship and residency at St. Luke's Hospital in Chicago; commissioned a lieutenant (jg), medical corps, U. S. Naval Reserve; began extended active duty on Sept. 22, 1941; later promoted to lieutenant; for meritorious service in the line of duty received the Order of the Purple Heart; aged 31; killed in action when the U. S. S. *Sims*, a destroyer on which he was serving, was lost in the Battle of the Coral Sea, May 7, 1942; previously reported missing in action; presumptive date of death by Navy Department is May 8, 1943.



LIEUT. FRANK J. KOLUMBAR JR.,
M. C., A. U. S., 1914-1944



LIEUT. ARTHUR W. WILKINSON
(MC), U.S.N.R., 1911-1943

Bureau of Investigation

CEASE AND DESIST ORDERS

Abstracts of Certain Federal Trade Commission Releases

The work of the Federal Trade Commission, in helping to protect the public against misrepresentation or fraud in the medical as well as other fields, has been greatly extended by the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act. The Food, Drug and Cosmetic Act of 1938 increased the Food and Drug Administration's control of the advertising claims and statements made on the label of a medicine or on the carton or in the accompanying leaflet, whereas what might be termed collateral advertising, that which appears in circulars, newspapers and magazines and over the air, comes more actively under the purview of the Federal Trade Commission by virtue of the Wheeler-Lea Amendment.

THE JOURNAL has at various times commented on the activities of the Federal Trade Commission in this connection, even before the Wheeler-Lea Amendment gave it its added rights. In some cases the Commission may accept from the person or concern involved a stipulation that the objectionable practices or claims cited will be discontinued. In other cases the Commission issues what is known as a Cease and Desist Order, in which the individual, manufacturer or distributor cited is ordered to cease and desist from practices which have been declared objectionable. In some cases the claims cited have been discontinued by the firms several months (or even longer) before the issuance of the order. Abstracts of some of the orders issued in 1943 follow in this form: name of product, name of distributor, date of issuance of complaint, date of issuance of Cease and Desist Order and terms of order.

Kola Astler.—Kola Astier Corporation and Gallia Laboratories, Inc., both of New York; complaint issued Jan. 31, 1942; order issued June 26, 1943. Order directed the respondents to discontinue the following advertising misrepresentations: That their product is of value in treating any disorder or condition resulting from exhausted nerves, other than that afforded by a mild, temporary stimulant; that it is a tonic and will restore lost energy; that it is a competent or effective treatment for poor digestion or insomnia; that it has any reliable effect on heart action or the circulatory system, or that its diuretic action is sufficient to activate the liver and kidneys. The Commission reported that the only active ingredient in Kola Astier is caffeine, and that its value is limited to that of a temporary stimulant, and only to the extent of the stimulating effect obtained from a cup of coffee.

Merlek.—Michael E., Myron E. and Kenneth L. Lee, trading as Leesons and as Merlek, Alameda, Calif.; complaint issued Nov. 15, 1942; order issued Oct. 27, 1943. Order directed respondents to discontinue any advertisement which represented that 90 per cent or any substantial percentage of diseases or ailments are due to a deficiency of minerals in the body; that Merlek corrects mineral imbalance or is the natural source of minerals; that it constitutes a cure or remedy for, or offers any value in the treatment of, prostaticitis, eczema, rickets, headache, Bright's disease, high and low blood pressure, stomach and heart trouble, indigestion, diabetes, bronchitis, arthritis, rheumatism, cancer, asthma, goiter, anemia, cataracts, and the many other diseases or ailments mentioned in their advertisements, or any other ailment or condition of the body. The Commission reported that Merlek had been found to be nothing but filtered sea water, to which was added at one time a quantity of potassium iodide.

Nash's G & L Malaria Chill Tonic and Laxative.—William G. Nash, Sr., William G. Nash, Jr., and Florence Nash Cox, trading as Nash Brothers Drug Company, Jonesboro, Ark.; complaint issued May 3, 1939; order issued May 12, 1943. Order directed respondents to discontinue the following misrepresentations and false advertising claims, among others, for this product, formerly known as "Nash's C & L Tonic": That it will cure malaria, biliousness, constipation, chills, fever and ague; that it is an effective tonic which will restore vigor and vitality; that it both prevents and cures colds, is a new discovery which is in no way habit forming, that it is endorsed by nurses, physicians, school teachers and health officials throughout the southern part of the United States, and that nine out of ten persons living in that region have malaria. The order recognized that the product, as now constituted, is an antimalarial preparation and laxative, but when taken according to directions on the label, is not an effective treatment for the cure of malaria or a cure or remedy for liver trouble, dyspepsia or the other ailments enumerated, and will not restore vigor or vitality or prevent or cure colds, nor is it endorsed by nurses, physicians or health officials throughout the south. A previous order from the Commission, issued August 6, 1939, had directed the same Nash persons to cease representing that Nash's C & L Tonic, also then known as Nash Chill and Liver Tonic, would cure malaria and some other results.

Nature Seed.—Beatrice Kornstein, trading as Nature Seed Company, New York; complaint issued March 12, 1943; order issued Sept. 29, 1943. Order directed promoter to discontinue the following advertising misrepresentations: That the product is a doctor's prescription for delayed, unnatural or suppressed menstruation; that it constitutes a competent treatment for such conditions; that it is composed of ingredients derived from nature and is harmless to use. Miss Kornstein further was ordered to discontinue any advertisement which failed to reveal that the use of Nature Seed might cause gastrointestinal disturbances and in cases of pregnancy might result in uterine infection and blood poisoning.

Todd's Capsules.—J. E. Todd, Inc., Kenmore, N. Y.; complaint issued August 16, 1941; order issued July 30, 1943. Order directed the respondent to discontinue any advertisement which represented that the product has any value in treating arthritis, neuritis, rheumatism or similar diseases or conditions. The order further directed respondent to cease representing that his preparation will alleviate the symptoms of pain associated with such diseases or conditions, or that it possesses any curative properties in treating these disorders. The Commission found that the value of the product, if used in adequate amounts, is limited to neutralizing the acids of the stomach contents and to acting as a mild laxative.

World's Tonic.—William J. Cooksey, also known as Ross Dyar, trading as World's Medicine Company and using postoffice boxes in Columbus, Ohio, and Indianapolis; complaint issued Oct. 19, 1942; order issued Oct. 30, 1943. Order directed respondent to cease representing that his product is a cure or remedy for anemia, swollen joints, kidney disorders, headaches, or the numerous other ailments and diseases enumerated in the advertising, or that it possesses any value other than that of a laxative and a bitter; and to discontinue any advertisement which did not reveal that the product should not be used when nausea or other symptoms of appendicitis are present; provided, however, that such advertisement need contain only the statement, "Caution: Use only as directed" when a warning to the same effect is included in the label directions. The Commission reported that World's Tonic was a mixture of cascara and other cathartics, with small amounts of gentian root, prickly ash bark, and other substances which, by reason of their bitter taste, tend to give it the properties of an appetizer or "bitter tonic," but that, aside from its action as a laxative and a bitter, it was without therapeutic value.

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

Following are abstracts of stipulations in which promoters of "patent medicines," medical devices and cosmetics have agreed, following action by the Federal Trade Commission, to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products:

Bevill's Lotion and Bevill's Corn Remedy.—John H. Bevill, trading as I. L. Bevill Company, Birmingham, Ala., has represented that his lotion will cure, heal or relieve athlete's foot in two days, relieve all types of eczema and effectively treat skin diseases resulting from bacteria or parasites; also that his preparation for corns is an effective treatment for bunions or ingrowing nails or will rid one of corns in from 1 to 5 days. In June 1943 he entered into a stipulation with the Federal Trade Commission in which he agreed to discontinue these advertising misrepresentations.

Gly-Cas.—This is a laxative sold by one Medora Whinrey, trading as Gly-Cas Medicine Company, Muncie, Ind. In June 1943 she stipulated with the Federal Trade Commission that she would discontinue any advertisements which failed to reveal that the product should not be used when abdominal pains, nausea or other symptoms of appendicitis are present; provided, however, that it would be sufficient to state in the advertisement, "Caution: Use only as directed" if and when the directions for use on the label contain a warning statement to the same effect. Records show that in May 1941 the Gly-Cas Medicine Company was ordered by the Commission to discontinue certain advertising representations for Gly-Cas. Among these were that it was a cure or remedy for constipation, indigestion, bloating or sour stomach, pains of rheumatism or neuritis, kidney disorders and some other ailments, when such conditions are due to causes other than constipation.

Laxo.—This preparation is sold by Benjamin Zwanger of Brooklyn in connection with his "Laxo Method" of dieting. In July 1943 Zwanger stipulated with the Federal Trade Commission that he would discontinue any advertisements which failed to reveal that Laxo should not be used when abdominal pain, nausea, or other symptoms of appendicitis are present, and that its frequent or continued use may result in dependence on laxatives. The stipulation provided, however, that it would be sufficient for such advertisements to state "Caution: Use only as directed" if the label of the product bears a similar warning.

Correspondence

PROPHYLAXIS OF SPOTTED FEVER

To the Editor:—It is thought that several comments should be made relative to your editorial entitled "Prophylaxis of Spotted Fever," which appeared in *THE JOURNAL*, May 20. By just glancing over the editorial it would seem that the observations of Anigstein, Bader, Young and Neubauer might have a clinical application as suggested. If one keeps in mind several known facts concerning Rocky Mountain spotted fever and the immunologic principles involved, it becomes evident that its practical application will be difficult if not impossible.

1. In order for active immunity to develop following local infiltration with immune serum around the site of a tick attachment, that tick must not only be infected but actually have passed the rickettsias on to the patient. If these two prerequisites are not satisfied, certainly there will be no subsequent immunity. Since only one among several hundred ticks, at the most, is infected, and even it must feed for several hours before it is able to infect, the chances of satisfying the two requirements mentioned are small. We know these chances are remote, for with the millions of tick bites that undoubtedly occur in the United States each year approximately only 500 cases of Rocky Mountain spotted fever are reported.

2. If a subsequent immunity after the infiltrations with serum is assumed, it will in most instances lead to a false sense of security on the part of both physician and patient. Lacking knowledge of the immunity status of the patient, it then becomes necessary to infiltrate for each separate tick bite. This would be an undesirable procedure if the commercially available immune rabbit serum is used, owing to the probability of an induced hypersensitivity to rabbit protein from repeated infiltrations. It is felt that the specific immune serum should be reserved for the treatment of actual cases of the disease. If human convalescent serum was employed we would still be confronted by the troublesome questions of which tick in several hundred is of real danger, and are we going to infiltrate for every tick bite? There is also the possibility to be considered, if human convalescent serum is employed, of producing hepatitis in some of the persons treated similar to the experience following yellow fever vaccine containing human serum.

3. Finally, it might also be mentioned that a fair number of cases of spotted fever give only a history of tick contact such as removing the arthropods from animals rather than the history of a definite tick bite. These individuals could not have had a prophylactic local injection of serum, and a question arises as to the actual site of infection even when a definite tick bite is present.

There are several methods available for the prevention of Rocky Mountain spotted fever. The first of these is the non-specific precautions that can be taken by any one. They consist of avoiding areas known to be heavily infested with ticks, wearing clothing tight at the wrists and ankles to deny ticks admittance to the body, and finally the prompt and efficient removal of ticks after exposure. It has been shown that an infected tick must feed for a few hours before it will transmit the disease; therefore, if they are removed promptly the chances of becoming infected are greatly reduced. However, even in areas known to be heavily infected the ratio of infected to noninfected ticks is very low. It has been estimated that this ratio in heavily infected areas is not more than 1:300.

The other available method of prevention of this disease is the acquiring of active immunity by vaccination with the specific antigen. Years ago Spencer and Parker showed that a vaccine against this disease could be made by the phenolization of infected tick tissues. Experience with this vaccine over a period

of some fifteen years indicates that the case fatality is definitely reduced and perhaps the morbidity as well. Rocky Mountain spotted fever vaccine is prepared by the United States Public Health Service at its Rocky Mountain Laboratory at Hamilton, Mont., and is dispensed from there to the various state health departments.

More recently Cox has been able to prepare a vaccine from infected yolk sacs of fertile hen's eggs that will immunize laboratory animals. This improvement in method will increase amounts of vaccine available. The Cox type vaccine is now being produced by the Public Health Service as well as by several of the biologic firms and can be purchased through ordinary commercial channels.

Widespread vaccination against a disease as sporadic as Rocky Mountain spotted fever offers but little hope of its control. It would be unwise as a public health measure to recommend vaccinations for other than those unusually exposed to ticks in areas known to be infected. The nonspecific method of prophylaxis should be advised for the rest of the population.

CHARLES ARMSTRONG, M.D.

NORMAN H. TOPPING, M.D.

Bethesda, Md.

Chief, Division of Infectious Diseases, and
Surgeon, respectively, U. S. P. H. S.

PHLEBOTOMUS (PAPPATACI OR SANDFLY) FEVER

To the Editor:—In the July 1 issue of *THE JOURNAL* the first article on "Phlebotomus (Pappataci or Sandfly) Fever," by Major Albert B. Sabin, Lieut. Col. Cornelius B. Philip and John R. Paul, M.D., immediately commanded my attention as I had had considerable experience with sandflies in China and had identified the phlebotomus in relation to sandfly fever in North China.

In the middle of the second paragraph of this article it is stated that "there are also reports which would suggest that this disease may occur in China as far north as Peiping and Tientsin and as far south as Hongkong. . . ." This question was answered in a paper which I presented at the biennial conference of the China Medical Missionary Association at Shanghai in February 1915 and published in the *China Medical Journal* in March 1915, under the title of "Sandflies (Phlebotomus) in China and Their Relation to Disease: Preliminary Considerations of the Identification and Distribution of Sandflies in China, with Special Reference to Phlebotomus Papatasi, Scopoli." The article was also reprinted in the *Tsing Hua Journal*, volume 1, No. 1, November 1915, pp. 12-19, and translated into Chinese.

At that time it was my privilege to be the physician to Tsing Hua College (United States Indemnity College) near Peking. For six years I had an opportunity to study sandfly fever among the students who came from all parts of China and also among the American and Chinese faculty. Specimens of the flies captured in and near Peking were sent to the Imperial Bureau of Entomology of the British Museum, where they were identified by Mr. Guy A. K. Marshall and later by Professor R. Newstead.

A considerable number of the flies were also sent to Frederick Knab, entomologist of the United States National Museum in Washington, who studied them carefully. Both of these men identified the phlebotomi as a new species, and Newstead gave the name of "chinensis" to this species. Specimens of my flies are still on file in the National Museum in Washington. However, in my paper in the *China Medical Journal* I have given photomicrographs of the species caught near Tsing Hua College, Peking, China.

While at Tsing Hua College I sent a questionnaire to a number of physicians and missionaries on the prevalence of sandflies (*Phlebotomus*) in China. Replies were received from a number of districts, and it was evident that sandflies and sandfly fever were prevalent in Peking, Tientsin, Tongshan and other places along the Tientsin-Shanhaiwan Railroad as well as around Kalgan. In other places in the south very few were reported.

I have much unpublished material relating to the measurements of my specimens and also clinical details on the number of cases of phlebotomus fever that I have had an opportunity to study. I am sorry that I have no extra copies of the reprint of my articles, but these may be found in the Surgeon General's Library in Washington and in the bound volumes of the *China Medical Journal* in the Allen Memorial Medical Library in Cleveland.

RICHARD A. BOLT, M.D., Cleveland.

Director, Cleveland Child Health Association.

FETAL AND NEONATAL MORTALITY COMPLICATED BY DIABETES

To the Editor:—In the article "Fetal and Neonatal Mortality in Pregnancy Complicated by Diabetes" by Miller, Kuder and Hurwitz (*THE JOURNAL*, January 29) the authors conclude that "an increased fetal and neonatal mortality can be observed from fifteen to twenty years before the clinical symptoms and signs of diabetes can be recognized."

This report prompted a review of the subject in 200 diabetic married women attending the metabolism clinic of the Mount Sinai Hospital. The patients were interviewed personally, whereas Miller and his co-authors used record room data.

In the article, a fatality analysis made in five year periods for the twenty years prior to the onset of diabetes revealed a rate of 23.8 per cent with 252 children born and 60 deaths. In our group there were 54 mothers who bore all their children in the twenty year period prior to the onset of diabetes; 141 children were born, 6 were stillborn and 6 died before ten days, constituting a fetal and neonatal mortality of 8.5 per cent compared with 23.8 per cent in their group. Our fetal and neonatal mortality of 8.5 per cent in the twenty year period preceding the onset of diabetes is closer to that obtained in the nondiabetic patients, 5.4 per cent of the Miller series. The figures for our entire group of patients, including births before the twenty year prediabetic period, are 5.7 per cent, with 598 births and but 21 stillbirths and 13 infant deaths within ten days after birth.

We do not find that the "fetal and neonatal mortality is extraordinarily high long before the mothers develop symptoms or signs of diabetes." In our experience the prediabetic period is associated with a fetal and neonatal mortality not significantly greater than in normal patients.

HENRY DOLGER, M.D.

JOSEPH HERZSTEIN, M.D.
New York.

VACATIONS AND THALASSOTHERAPY

To the Editor:—The special article in *THE JOURNAL* April 15 entitled "Thalassotherapy" has come to my attention. It may be that the scientific material presented in this article is valid and correct, but it should be pointed out that any effort to evaluate the value of a vacation in any place must include some consideration of who is having the vacation, with whom he is having it, why he needs it and what he does while he is on it. The authors of this article must be aware of the fact that there are some individuals who live in the region the article is written about and are continually exposed to the air, water and sun you mention, and that in spite of these things these individuals find it necessary to take vacations elsewhere. There are some

individuals for whom a vacation at the seashore is undoubtedly injurious since, through so doing, they are trying to run away from problems and difficulties which are within themselves.

Before the series of articles in this type of therapy is completed, it is suggested that one be secured which gives attention to the total factors operative in this matter.

WILLIAM SHANAHAN, M.D., Honolulu, T. H.

Acting Director, Bureau of Mental

Hygiene, Queens Hospital.

USE OF CATHARTICS BEFORE GASTRO- INTESTINAL ROENTGENOLOGY

To the Editor:—In response to my communication in *THE JOURNAL* of May 27 regarding x-ray studies of the intestinal tract, I have heard from a number of roentgenologists. Their general plea is: We can't show the intestines if they are full of feces and gas, therefore we must use cathartics and enemas. They challenge me to suggest a better way, which of course I am unable to do.

Mostly they speak of "spastic colon" as a diagnosis too readily made.

All I would ask is that the profession shall understand that, for gastrointestinal studies, enemas and cathartics are prescribed by roentgenologists, and that therefore the films show the bowels, not as they normally are, but as they are under the influence of such measures.

WALTER A. BASTEDO, M.D., New York.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, July 22, page 867.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various centers, Aug. 7-9 and Nov. 13-15. Part III. Various centers, September or October. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Part I. Various centers, Jan. 19. Final date for filing application is Oct. 21. Sec., Dr. P. M. Wood, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. Various centers, Oct. 16. Candidates in military service may take examination at their place of duty. Final date for filing application is August 15. Asst. Sec., Dr. W. A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written*. Part I. Various centers, February. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 5-7. Los Angeles, January. Final date for filing application is Oct. 1. Sec., Dr. S. Judd Beach, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and Written*. Part I. Chicago, Oct. 13-14. New Orleans, Sept. 29-30. New York, Oct. 6-7. San Francisco, Oct. 20-21. Final date for filing application is August 1. Sec., Dr. G. A. Caldwell, 3503 Prytanis St., New Orleans.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral*. Chicago, Oct. 4-7. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Sept. 22. *Oral*. St. Louis, Nov. 8-9. New York, Dec. 15-16. Final date for filing application is Aug. 15. New York, April 14-15. Final date for filing application is Dec. 15. Chicago, May 19-20. Final date for filing application is Jan. 19. Sec., Dr. C. A. Aldrich, 115½ First Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: *Oral*. New York, December. Final date for filing application is Sept. 30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N.W., Washington 6, D. C.

AMERICAN BOARD OF SURGERY: *Written*. Part I. Various centers, October 25. Final date for filing application is August 15. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Insanity: Irregular Commitment to State Hospital as Affecting Right to Release of Insane Person.—Barbee, an elderly man afflicted with senile psychosis, lived without restraint with his daughter-in-law, Mrs. Barbee. March 16, 1943 one Woods, a brother of Mrs. Barbee, filed what is referred to as a citizen's affidavit of insanity with respect to Barbee with the probate court of Pulaski County, Arkansas. The next day Woods filed and presented to the probate court judge certain interrogatories and answers of two physicians with respect to Barbee's insanity. One of these affidavits was executed by Dr. Rowland on the basis of an examination he had made of Barbee the preceding day. The other affidavit was executed by Dr. Holmes on the basis of an examination he had made of Barbee in February 1943, when he had administered an antirabies treatment to him. The probate court held a hearing on the matter in Barbee's absence and without any notice whatsoever to him and issued a warrant for commitment, directing the sheriff to take Barbee into custody and to deliver him to the superintendent of the Arkansas State Hospital for Nervous Diseases. Mrs. Barbee and Woods requested the sheriff to hold up execution on the warrant until they had decided whether they could care for Barbee without the necessity of commitment. May 26, 1943, on Mrs. Barbee's and Woods' request, the sheriff took Barbee into custody and delivered him to the hospital. On Barbee's arrival at the hospital a diagnosis was made of "senile psychosis, confused type, plus paranoid trend." Shortly thereafter a petition for a writ of habeas corpus was filed on behalf of Barbee, alleging that he was sane and that the proceedings before the probate court were void because of lack of notice to him, because the judge failed to impanel a jury and because there was no competent evidence tending to establish his insanity. At the hearing on the petition Dr. Murphy, a psychiatrist who had examined the petitioner at the request of his attorney, testified that the petitioner had "senile psychosis," that he probably would not recover sufficiently to take care of himself physically or in the business world and that he would require supervision. Dr. Hollis, a member of the hospital staff, testified as to the findings of the hospital staff and that in his opinion Barbee was insane, in all probability would become worse instead of better, that he would require constant care and supervision and that there would be need to prevent him from wandering off and exposing himself to weather and the hazards of traffic. The petitioner himself appeared at the hearing and testified. From an adverse decree by the trial court, Barbee appealed to the Supreme Court of Arkansas.

After the issuance of the warrant of commitment but before Barbee was actually confined to the hospital, a new act respecting the commitment of the insane became effective in Arkansas (Act No. 241, Acts, 1943). This act, said the Supreme Court, is rather comprehensive and greatly modifies the prior law relating to who, and methods by which, persons may become patients in and be discharged from the State Hospital for Nervous Diseases. Because the proceedings in which Barbee was adjudicated insane were had before the effective date of Act 241, we must look to the then existing law to determine whether he was properly committed. For the purpose of this opinion we assume, without deciding, that the commitment proceedings were not in conformity with the then existing law. However, if evidence indicates that one committed to an institution for the insane is actually insane, and such evidence is here present, the court should not order his discharge, regardless of the invalidity of the proceedings under which he was committed, but should direct his continued restraint until such time as proper proceedings can be had for a formal adjudication of insanity. As authority for this statement the court quoted from *Ex parte Smith*, 167 Ark. 80, 266 S. W. 950. In that case this court sustained the action of the lower court in refusing to direct the

discharge of a patient, admitted insane, from the U. S. Veterans Hospital, who had been placed therein by his guardian without the formal order of any court. The court there said:

Under those circumstances, the petitioner is not entitled to an absolute discharge from the custody of the hospital authorities. According to the allegations of the response, which must be taken as true, the hospital authorities rightfully received petitioner into their custody, and the court should not require them to turn him loose and permit him to go at large, if he is afflicted in the manner and to the extent set forth in the response. In this respect the hospital authorities are in the same attitude and are charged with the same duties as any other person having rightful custody of an insane person. The duty is not to abandon an insane person until he can be taken into custody by such person or institution as is charged by law with the duty to care for the insane. The statutes of this state provide that, when a person is insane so as to endanger his own person, or the person or property of others—"it shall be the duty of his guardian, or other person under whose care he may be, and who is bound to provide for his support, to confine him in some suitable place until the next term of the probate court for his county, which shall make such order for the restraint, support and safe-keeping of such person as the circumstances of the case shall require." Crawford & Moses' Dig. sec. 5854. Adequate provision is made by law for the custody and care of insane persons, and of course these statutes have full application to an insane person in the United States Veterans' Hospital, but, until some steps are taken for the legal care and custody of such insane person, the court will not require the absolute discharge of the patient from custody.

Under certain conditions specified in Act 241 of 1943, the court continued, the superintendent of the state hospital may admit persons to the hospital as patients without the order of a court. Under that act he may discharge any person from the hospital who in his opinion is then mentally competent, whether such person was admitted with or without an order of court. Of course, the superintendent would have no authority indefinitely to hold in involuntary custody any person who had not been committed by the proper order of a court of competent jurisdiction. Recognizing that patients admitted without a formal commitment, or through irregular process, might later demand their discharge at a time when their condition was such as to require their continued confinement, the lawmakers, by section 6 of the 1943 act, specifically authorized the superintendent to apply to and obtain from the probate court of the county of any such patient's residence a writ of commitment. If the petitioner's present mental condition is such that his discharge would not be dangerous for either himself or society, and if his mental condition is such that his own best interest does not require that he remain in the hospital for further treatment and supervision, then he should be discharged, but if his condition is to the contrary he should continue as a patient in such institution. If the superintendent of the hospital is of the opinion that the petitioner should be discharged, he is clothed with ample authority to effect his release. On the other hand, if he entertains a contrary conviction, he may and should apply to the probate court of the proper county for the issuance of a writ of commitment in accordance with the act.

The court accordingly modified the decree so as to provide that the petitioner's petition will be dismissed without prejudice to his right again to assert all matters alleged therein if the superintendent shall fail to apply within thirty days to the proper probate court for a writ of commitment.—*Barbee v. Kolb*, 179 S. W. (2d) 701 (Ark., 1944).

Society Proceedings

COMING MEETINGS

- Aero Medical Association of the United States, St. Louis, Sept. 4-6. Dr. David S. Brachman, 5440 Cass Ave., Detroit 2, Secretary.
- American Congress of Physical Therapy, Cleveland, Sept. 6-9. Dr. Richard Kovacs, 2 East 88th St., New York 28, Secretary.
- Delaware Medical Society of, Lewes, Sept. 11-12. Dr. W. O. La Motte, 601 Delaware Avenue, Wilmington, Secretary.
- Kentucky State Medical Association, Lexington, September 18-20. Dr. P. E. Blackerby, 620 S. Third St., Louisville, Secretary.
- National Medical Association, St. Louis, Aug. 14-17. Dr. John T. Givens, 1108 Church St., Norfolk, Va., Secretary.
- Oregon State Medical Society, Portland, Sept. 2-3. Dr. Thomas D. Robertson, St. Vincent's Hospital, Portland, Secretary.
- Pennsylvania Medical Society of the State of, Pittsburgh, Sept. 19-21. Dr. Walter F. Donaldson, 500 Penn. Ave., Pittsburgh 22, Secretary.
- Utah State Medical Association, Salt Lake City, August 24-26. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.
- Wisconsin State Medical Society of, Milwaukee, Sept. 18-20. Mr. Charles H. Crownhart, 110 E. Main St., Madison 3, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

67:247-340 (April) 1944

Complications of Infantile Eczema Caused by Virus of Herpes Simplex:
(a) Description of Clinical Characteristics of Unusual Eruption and
(b) Identification of Associated Filtrable Virus. H. A. Wenner.
—p. 247.

Factors Influencing Retention of Nitrogen and Calcium in Period of Growth: VI. Calcium and Vitamin D Requirements of Older Child. J. A. Johnston.—p. 265.

Occlusion of Urethral Meatus. M. Muschat.—p. 275.

*Dental Caries as Influenced by Fat versus Carbohydrate in Diet. J. D. Boyd.—p. 278.

Myocarditis in Children. O. Saphir, S. A. Wile and I. M. Reingold.
—p. 284.

Dental Caries and Diet.—In the course of observations by Boyd, a sharp break was made in the dietetic regimen, the original high fat diets being replaced by diets which offered only half as much fat and twice the amount of carbohydrates. The observations involve dental courses of 59 girls and 52 boys who were examined recurrently for not less than three years each during a routine management of diabetes. Analyzing the data from the standpoint of the relative protection against caries afforded by the higher versus the lower fat diets, the author noted that such differences as exist bear no constant relationship to the level of fat in the diet. The differences between the values for the groups who received exclusively the higher and the lower fat diets are equivocal. No constant or significant difference in the average rates of progression of caries was found between two groups of children whose fat ingestion differed by 100 per cent. Protection against caries is thought to depend on the common high nutritive worth of the contrasted diets.

American Journal of Public Health, New York

34:435-566 (May) 1944

Preparation of Health Education Personnel for War and Postwar Periods: Responsibility of School of Public Health. H. R. Leavell.—p. 435.

Id.: Supervised Field Work. Lucy S. Morgan.—p. 440.

Id.: Preparation of Public School Teacher. Ruth E. Grout.—p. 446.

Multiple Antigens for Active Immunization. W. E. Bunney and others.
—p. 452.

Chemical Warfare—Chemical and Toxicologic Review. J. R. Wood.
—p. 455.

Tissue Cultures for Virus Investigations in Field. M. Sanders and C. H. Huang.—p. 461.

Philosophy and Future of Milk Control. J. L. Barron.—p. 467.

Engineering Problems in Use of Glycol Vapors for Air Sterilization. B. H. Jennings and E. Bigg.—p. 477.

Favorable and Adverse Developments in School Environment. A. Wolman, A. H. Fletcher and W. H. Schulze.—p. 484.

Resources of Industry for Health Education. H. N. Calver.—p. 489.

Modern Malaria Control. M. D. Hollis.—p. 494.

United States Chamber of Commerce Public Health Program. H. Strong.
—p. 499.

Newer Procedures in Laboratory Diagnosis and Therapy in Control of Bacillary Dysentery. A. V. Hardy and J. Watt.—p. 503.

Problem of Falsely Doubtful and Positive Reactions in Serology of Syphilis. J. A. Kolmer.—p. 510.

Annals of Allergy, Minneapolis

2:85-186 (March-April) 1944

Allergic Pulmonary Consolidations. O. C. Hansen-Pruss and E. G. Goodman.—p. 85.

Skin Reactions to Patch Test with Human Dander. F. A. Simon.
—p. 109.

Food Allergy: Role of Food Allergy in Internal Medicine. H. J. Rinkel.—p. 115.

Sensitivity to Minor Pollens. H. L. Rogers.—p. 125.

Molar Standardization of Ragweed Pollen Extracts. G. E. Rockwell.
—p. 137.

Sterile Abscess Complicating Alum Precipitated Tetanus Toxoid: Case Report. A. J. Rawson.—p. 145.

Archives of Internal Medicine, Chicago

73:271-364 (April) 1944

*Dermatomyositis. B. V. Jager and L. A. Grossman.—p. 271.

*Studies in Acute Myocardial Infarction: III. Diagnosis and Location of Infarct by Electrocardiogram. S. Baer and H. Frankel.—p. 286.

Life Expectancy After an Attack of Myocardial Infarction: Report of Case of Survival for Nineteen Years After Coronary Thrombosis. G. McHardy and D. C. Browne.—p. 290.

*Palindromic Rheumatism: "New." Oft Recurring Disease of Joints (Arthritis, Periarthritis, Para-Arthritis) Apparently Producing No Articular Residues—Report of 34 Cases; Its Relation to "Angioneural Arthrosis," "Allergic Rheumatism" and Rheumatoid Arthritis. P. S. Hench and E. F. Rosenberg.—p. 293.

Comparative Study of Analgesic Effect of Morphine Sulfate and Monoacetylmorphine. C. M. Jones and W. P. Chapman, with technical assistance of R. Desautels, C. Royer, B. Roth and W. Drucker.—p. 322.

Postoperative Thrombocytosis. E. Adams.—p. 329.

Electric Shock Therapy in General Hospital. T. J. Heldt, D. D. Hurst and N. P. Dallis.—p. 336.

Use of Synthetic Diet for Food Allergy and Typhoid. W. H. Olmsted, C. G. Harford and S. F. Hampton, with technical assistance of Marjorie Jorgenson.—p. 341.

Diseases of Liver and Biliary Tract: Hepatic Involvement in Various Diseases Related to War. C. H. Greene.—p. 349.

Dermatomyositis.—Jager and Grossman report clinical and laboratory observations and muscle biopsies in 9 cases of dermatomyositis observed in Vanderbilt Hospital. Evidence of involvement of muscles was present in every instance. Frequently there were tenderness, weakness and atrophy of skeletal muscles. Occasionally the so-called vital striated muscles of deglutition and respiration were affected. In all instances biopsy specimens of skeletal muscles revealed certain histologic changes. These microscopic lesions are not specific for this disorder. Similar muscular changes have been observed in rheumatoid arthritis, pneumonia, thyrotoxicosis and other diseases. Involvement of the skin occurred in 7 of the 9 cases. In 2 the mucous membranes of the mouth were affected. In 1 case there was a diffuse scleroderma, and in 2 others sclerodermatous changes were confined to the hands. A history of Raynaud phenomena was elicited in 4 cases. Extensive laboratory studies revealed no constant abnormality other than spontaneous creatinuria. Carbohydrate metabolism, as indicated by several types of tests, was apparently normal. Studies of the reaction to overcooling, as shown by the cutaneous temperature, gave results typical of Raynaud's syndrome in the 4 cases with a history of this disturbance and in 1 case without such a history. The variability of the manifestations was sufficient to arouse doubt as to whether "dermatomyositis" is a single clinical entity. A similar view is obtained from reading previous reports of this disorder. It may be necessary to follow the course of the illness for a prolonged period before the diagnosis can be established with certainty.

Diagnosis and Location of Myocardial Infarct by Electrocardiogram.—Baer and Frankel report that electrocardiograms taken in 321 cases revealed infarction in 94 per cent. On electrocardiographic study alone, 52 per cent of the infarcts were found to be anterior and 34 per cent posterior. Of 74 patients coming to necropsy, 70 per cent had anterior, 23 per cent posterior and 7 per cent anteroposterior infarction. Anterior myocardial infarctions are more frequent and more serious than posterior infarctions. Infarction of the anterior wall of the left ventricle is more apt to be missed by electrocardiograms than posterior involvement. Electrocardiographic diagnosis and location of the infarction are highly accurate.

Palindromic Rheumatism.—Hench and Rosenberg describe an unusual, oft recurring disease of joints and adjacent tissues, 34 cases of which have been studied in the arthritis service of the Mayo Clinic since 1928. Its main features are multiple afebrile attacks of acute arthritis and periarthritis, and sometimes of para-arthritis, with pain, swelling, redness and disability generally of only one, but sometimes of more than one, small or large joint, in an adult of either sex. The attacks appear suddenly and develop rapidly. They generally last only a few hours or days and then disappear completely, but they recur repeatedly at short or long, irregularly spaced intervals. Among the various predisposing factors mentioned by the patients were seasonal and weather influences, menstrual factors, work fatigue, trauma, infection and food sensitivity. Their investigations on the etiology included studies on a possible allergic nature, on an infectious origin and on an angioneurotic

factor. The attacks presented no apparent relationship to acute exogenous infection such as sore throat or influenza, and most of the patients had long since been relieved of infected foci with only temporary or no relief. Angioneurosis was probably not the cause of the articular and other reactions of the palindromic rheumatism. Since the most characteristic feature is the frequent recurrence of the attacks, the authors decided on the term "palindromic," meaning recurring. Numerous treatments had been used by the patients, generally without success. Most of them had fallen back on the use of heat and analgesics during attacks. The remedies tried by the authors were predicated on the idea that the disease might be allergic; later, measures to combat some possible infection were instituted. Neither plan of attack has produced notable results. There appears to be little or no tendency for attacks to become chronic. Despite the thousands of attacks suffered, not a single joint has been crippled permanently.

Archives of Pathology, Chicago

37:227-296 (April) 1944

- Renal Phosphatase: Correlation Between Functional Activity of Renal Tubule and Its Phosphatase Content. H. A. Wilmer.—p. 227.
Pancreatic Function and Disease in Early Life: V. Pathologic Changes Associated with Pancreatic Insufficiency in Early Life. S. Farber.—p. 238.
Analysis of Relationship of Seminoma and Arrhenoblastoma to Teratoma. A. E. Rhoden.—p. 251.
Toxicopathologic Studies on S-Methylisothiourea. W. C. Hueper and C. T. Ichniowski.—p. 253.
Demonstration of Lesion Produced by Experimental Poliomyelitis in Central Nervous System of Mouse. Claire Foster and W. Ehrlich.—p. 264.
Studies on Inflammation: VI. Inhibitory Action of Tuberculin on Cathepsin. C. Weiss and Nellie Halliday.—p. 272.
Role of Acetylcholine in Anaphylactic Process. S. Farber, A. Pope and E. Landsteiner Jr.—p. 275.
Fate of Polyvinyl Alcohol Introduced Intraperitoneally in Rats. R. H. K. Foster and Lucille Jenkins.—p. 279.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

76:1-122 (May) 1944. Partial Index

- Treatment of Burns in Forward Areas. C. C. Johnston.—p. 109.
Attempts to Produce Jaundice in Horses by Inoculation of Yellow Fever Vaccine. T. C. Jones and F. D. Maurer.—p. 115.

Cancer Research, Baltimore

4:273-336 (May) 1944

- Experimental Brain Tumors: V. Behavior in Intraocular Transplants. D. Freeman and H. M. Zimmerman.—p. 273.
Influence of Environmental Temperature on Incidence and Course of Spontaneous Tumors in C3H Mice. E. W. Wallace, Helene Wallace and C. A. Mills.—p. 279.
Effect of Various Factors on Harding-Passey Melanoma of Mouse. K. Sugiura.—p. 282.
Relations to Chick Tissues of Tumors Produced by Yolk Injection Technic. R. E. Hungate, A. Taylor and R. C. Thompson.—p. 289.
Is Cancer a Communicable Disease? L. Gross.—p. 293.
Fluorescent Concentrates from Nonsaponifiable Fractions of Human Livers. R. N. Jones and C. D. May.—p. 304.
Oral Cancer in Bombay, India: Review of 1,000 Consecutive Cases. V. R. Khanolkar.—p. 313.

Iowa State Medical Society Journal, Des Moines

34:183-224 (May) 1944

- Medicine in Postwar World. L. R. Woodward.—p. 183.
Heart Clinic. H. L. Smith, E. W. Anderson and G. E. Mountain.—p. 186.
Penicillin in Treatment of Severe Staphylococcal Bacteremia with Complications: Report of Case. J. D. Anderson.—p. 191.
*Intra-Abdominal Apoplexy. A. I. Haugen.—p. 198.
Encephalitis Complicating Measles. W. Cary.—p. 201.

Intra-Abdominal Apoplexy.—Haugen analyzes the 25 recorded cases of intra-abdominal apoplexy with regard to etiology, clinical picture, diagnosis and treatment. He stresses the importance of early recognition of hemorrhage as the cause of the patient's collapse, and on the necessity of prompt and adequate replacement therapy with blood and plasma during and after attempts to secure surgical hemostasis. The preoperative diagnosis can be only tentative in those who have an essentially unruptured hematoma, but on finding such a condition at operation one can usually find the bleeding point. In only 6 of the 20 patients operated on did such circumstances prevail that the

surgeon could deal directly with the bleeding vessel, usually by ligation. Five of these 6 patients recovered. On the other hand, those who after one or more episodes of bleeding have developed a massive hemoperitoneum present a picture making a surgeon hesitate to add the risk of operation to their already desperate condition. In 13 such patients operated on the bleeding point could not be found to permit surgical hemostasis; but 8 of these recovered. The immediate indication in these cases is to reestablish an effective circulating blood volume, first to the point of operability by means of intravenous serum or plasma and then, after opening the abdomen, to salvage the large quantity of blood found there and after careful filtration to reinfuse it into the patient's veins. It seems important to keep the patient as comfortable and quiet as possible and to avoid catharsis, enemas, food, rough palpation and other factors that might tend to cause more bleeding. A case is reported which was mistakenly diagnosed as appendicitis while in the simple hematoma stage. After a relatively silent interval of four days there developed recurrent episodes of collapse due to free intraperitoneal bleeding, which proved fatal on the fifth day. Necropsy disclosed a peritoneal cavity full of clotted and liquid blood. The hematoma extended up around the pancreas. The original point of bleeding could not be identified. As in so many of the other recorded cases, it is doubtful that the bleeding point could have been found at operation at any time after the original rupture of the hematoma.

Journal of Aviation Medicine, St. Paul

15:75-148 (April) 1944

- Types of Internal Injuries of Personnel Involved in Aircraft Accidents. G. M. Hass.—p. 77.
Observations on Odd and Strange War in South Pacific. M. M. Kalz.—p. 85.
Air Evacuation. R. L. Meiling.—p. 93.
Effects of Administered Pregnenolone on Fatiguing Psychomotor Performance. G. Pincus and H. Hoagland.—p. 98.
Selection of Pilots by Means of Psychomotor Tests. A. W. Melton.—p. 116.
Developments in Aviation Medicine in the Field. J. C. Adams.—p. 124.
Medical Service with Army Air Forces. W. S. Jensen.—p. 127.
Prediction of Flight Training Performance by Biographical Data. J. G. Jenkins.—p. 131.
Study in Cockpit Illumination. C. P. Seitz.—p. 136.
Preliminary Report on Occurrence of Muscular Cramps in Fliers in ETO. W. G. Beckman.—p. 138.
Effect of Pavlovian Conditioning During Anoxia and at High Altitude. W. M. Davidson.—p. 141.
*Parachute Jump from 32,000 Feet Without Oxygen: Report of Case. H. Kirschbaum.—p. 142.

Parachute Jump from 32,000 Feet Without Oxygen.—Kirschbaum reports that a man whose plane caught fire while he was traveling at 32,000 feet jumped from the moving plane at that height. His oxygen tube was torn during the jump. He held his breath as he tumbled. At 30,000 feet he realized that he might become unconscious and therefore pulled the chute cord. He was unable to hold his breath any longer. When the chute opened there was a violent jerk in the right groin due to the crotch straps. His clothing consisted of an ordinary cloth flying suit and leather jacket, and he wore no gloves. After the chute opened, he placed his hands in his arm pits. He lost consciousness at about 30,000 feet and regained it again at about 10,000 feet. He attempted to pull himself up on the ropes of the chute, but he was unable to do so because of weakness of his hands. At 3,000 feet he was very clear, and he made an effort to guide the chute so that it would not fall over him. Weakness of the hands still persisted. The entire descent took twenty-one minutes. He landed on both feet, and the chute fell to the right. He had sufficient presence of mind to advise the farmer who found him not to carry him without a litter. Physical examination revealed a hematoma above Poupart's ligament. There was slight tenderness on pressure in the region of the upper lumbar spine. X-ray examination revealed dislocation of the first lumbar vertebra and disarticulation of the rib at the twelfth thoracic vertebra. Hyperextension treatment on the Bradford frame was advised. He was placed in a plaster jacket in extension after reduction of the lumbar dislocation under gas-ether anesthesia six days after the parachute jump. Two months after the accident he was walking about in a plaster body cast and his general condition was excellent.

Journal of Bone and Joint Surgery, Boston

26:229-434 (April) 1944. Partial Index

- Fibular Substitution for Tibial Defects. A. G. Davis.—p. 229.
- *Neurosurgical Interpretation of Dermatomal Hypalgnesia with Herniation of Lumbar Intervertebral Disk. J. J. Keegan.—p. 238.
- Brackett Operation for Ununited Fracture of Neck of Femur: Report of 34 Cases. M. L. Rowe and R. K. Ghormley.—p. 249.
- Significance of Iliocostal Fascial Graft in Treatment of Paralytic Deformities of Trunk. L. Mayer.—p. 257.
- Peripheral Nerve Changes Associated with Congenital Deformities. B. H. Moore.—p. 282.
- Reduction of Transverse Fractures of Long Bones: Technic Using Flexion and Reverse Flexion. R. D. S. Ramos.—p. 289.
- Functional Arthroplasty. J. Hass.—p. 297.
- Detailed Operative Technic for Open Reduction and Internal Fixation of Fractures of Long Bones. C. R. Murray.—p. 307.
- Resection of Distal End of Ulna. H. B. Boyd and M. M. Stone.—p. 313.
- Blatromycosis of Skeletal System: Summary of 27 Recorded Cases and Case Report. P. C. Colonna and T. Gucker.—p. 322.
- Surgical Treatment of Internal Derangement of Knee Joint Among Troops in Training at Fort Jackson, South Carolina: An End Result Study. M. Cleveland, L. J. Willien and P. C. Doran.—p. 329.
- Open versus Closed Treatment of Acute Osteomyelitis: Clinical Report on Use of Antitoxin and Sulfonamide Drugs With and Without Early Drainage. L. D. Baker, H. J. Schaubel and H. H. Kuhn.—p. 345.
- Amputation for Chronic Osteomyelitis. J. A. Key.—p. 350.
- Amputation of Lower Leg with Induced Synostosis of Distal Ends of Tibia and Fibula. C. G. Barber.—p. 356.
- Comminuted Fracture-Dislocation of Shoulder. L. S. Michaelis.—p. 363.
- Quadricepsplasty to Improve Knee Function. T. C. Thompson.—p. 366.
- *Use of Penicillin in Navy. J. S. Barr.—p. 380.
- *March Fractures of Femur. H. E. Branch.—p. 387.

Dermatome Hypalgnesia with Herniation of Lumbar Intervertebral Disk.—Keegan emphasizes that herniated lumbar intervertebral disks commonly compress single nerve roots and present associated dermatome hypalgnesia in the lower extremity, which is accurately diagnostic of the location of the lesion. He presents a new dermatome chart of the lower extremity based on hypalgnesia from proved single nerve root loss. These findings are in disagreement with the common dictum that loss of a single nerve root produces no loss of sensation. The nerve root most commonly compressed by herniated intervertebral disk is the first sacral nerve root. Recognition of the syndrome of lesions of the first sacral nerve root, with its characteristic dermatome hypalgnesia and loss of the ankle jerk, removes suspicion of extraspinal lumbar pathologic change as a possible cause, as this nerve root is entirely intraspinal until its exit through the first sacral foramen. Subjective and objective numbness and reflex loss are organic neurologic signs not explainable from possible reflex reference from obscure distant pathologic changes. Numbness over the distribution of a single nerve root dermatome necessitates a lesion involving that root. The common occurrence of pathologic changes in the fifth and fourth lumbar disks, leading to later herniation, should be considered more often as a possible explanation of early attacks of low back pain. Manipulative treatment should be directed to reduction of this beginning herniation. Roentgenograms of the lumbar spine should be directed to the disk indicated by the unilateral single dermatome hypalgnesia. A conservative attitude should be maintained in surgery of the herniated disk, for in many early cases improvement occurs without surgical intervention; however, with or without operation these patients present some permanent disability which requires back protection. A spine fusion operation is not often indicated because of the unreliability of preoperative selection of cases and the imperfect results of this time consuming procedure. Deliberate section of a nerve root sometimes is warranted and effective to relieve persisting single nerve root pain after an operation for a herniated disk. The nerve is identified by its dermatome hypalgnesia. The author performed section of the nerve root in 9 cases.

Use of Penicillin in Navy.—Barr summarizes the 1,976 cases treated with penicillin and reported to the Bureau of Medicine and Surgery prior to Jan. 1, 1944. No serious untoward effects attributable to penicillin were noted. Penicillin is administered either continuously by the intravenous route or intramuscularly every three hours night and day. The average recommended daily dose is 60,000 units if the intravenous route is used, and 120,000 units if the intramuscular route is elected. For critically ill patients combined intravenous and intramuscular penicillin therapy for the first twenty-four hours may be necessary, a maximum of 240,000 units

being given by each route during that interval. In mixed infections better results may be obtained by using penicillin and sulfonamide therapy concurrently than would be the case if either was used alone. Frequently repeated blood transfusions appear to be of value in reinforcing the patient's hemopoietic system. Topical application in soft tissue wounds and in osteomyelitis appears to be of therapeutic value. It may be applied in saline compresses containing 250 units per cubic centimeter of solution. The solution should be trapped at the site of the lesion and should be renewed every six to eight hours. Simple irrigation is not effective. Sulfonamide resistant gonorrhea responds dramatically to penicillin therapy; 99 per cent of 1,750 cases were cured by the treatment. Diseases due to *Streptococcus haemolyticus*, *Staphylococcus aureus*, *Clostridium welchii*, *pneumococcus*, *meningococcus*, and certain other organisms are also favorably affected, although the results are not so striking as in gonorrhea. Fifty per cent of the cases of osteomyelitis appear to have been cured by a combination of penicillin therapy and surgery. Long standing chronic cases in which there is bone sclerosis with deep seated walled off pockets of infection appear to be less amenable to treatment than acute cases. Adequate, well planned surgery is still necessary in osteomyelitis.

March Fracture of Femur.—According to Branch, march fracture is most common in the second and third metatarsals, owing to the foot going into pronation under fatigue and then letting the weight come on the plantar and medial sides of the metatarsal heads, tending to twist the shafts of the metatarsals dorsolaterally. The bone affected next in order of frequency is the tibia, usually in the middle third. This fracture occurs most often in infantry recruits. The fibula may be affected in two typical sites: 1. Proximal, a palm's breadth below the head; this lesion occurs usually in gunners and is due to their jumping back and forth from the gun carriage. 2. Distal, just above the external malleolus; this type is commonly found in ice skaters. Fracture of the femur has been considered most common in the lower third. Fracture of the neck of the femur is not uncommon but is often unrecognized. Fractures of the femoral shaft are taught to be due to running in a crouched position or to the strain of marching with full packs. Added factors are the rotary mechanism in the hip joint and the traction that the hip muscles exert. Fractures of the shaft of the humerus occur in hand grenade throwers. The os calcis is fractured usually a finger's breadth beyond the subastragalar joint and is probably due to prolonged marching. The author presents 1 case of march fracture of the femoral shaft and 3 cases of march fracture of the neck of the femur, all of which have been treated at the Harmon General Hospital in the last seven months. Soldiers complaining of symptoms simulating muscle strain, bursitis and the like should have roentgenograms taken to rule out this type of fracture. Insufficiency or exhaustion fracture is probably a better term than march fracture.

Journal of Clin. Endocrinology, Springfield, Ill.

4:95-146 (March) 1944

- Correlation of Ovarian and Endometrial Histology, Vaginal Epithelium, Gonadotropic Hormonal Excretion and Day of Menstrual Cycle in 28 Women. C. G. Heller, J. P. Farney, D. N. Morgan and G. B. Myers.—p. 95.
- Development and Correlation of Menopausal Symptoms, Vaginal Smear and Urinary Gonadotropin Changes Following Castration in 27 Women. C. G. Heller, J. P. Farney and G. B. Myers.—p. 101.
- *Effect of Small and Large Doses of Diethylstilbestrol on Menopausal Symptoms, Vaginal Smear and Urinary Gonadotropins in 23 Oophorectomized Women. C. G. Heller, R. E. Chandler and G. B. Myers.—p. 109.
- Effects of Massive Doses of Testosterone Propionate on Spermatogenesis. R. S. Hotchkiss.—p. 117.
- Treatment of Breast Cancer with Testosterone Propionate: Preliminary Report. E. Fels.—p. 121.
- Experimental Studies of Sexual Behavior in Male Mammals. F. A. Beach.—p. 126.
- Sex Endocrines in Development and Prepuberal Life. C. R. Moore.—p. 135.

Diethylstilbestrol for Oophorectomized Women.—Heller and his associates investigated the effect of relatively small and relatively large oral doses of diethylstilbestrol on menopausal symptoms, vaginal smears and urinary gonadotropins in 23 women who had been subjected to bilateral oophorectomy and followed postoperatively until the menopausal syndrome

had been firmly established. Daily doses of 0.5 mg. by mouth alleviated menopausal symptoms in 20 cases and had an estrogenic effect on the vaginal mucosa in all 23 cases but did not suppress gonadotropic excretion. The average titer of gonadotropins during the administration of this dosage was slightly higher than before treatment, because of increased output of the luteinizing fraction (interstitial cell stimulating hormone). The symptomatic and physiologic effects of the 0.5 mg. dose of diethylstilbestrol were not mediated through the anterior pituitary gland. Daily doses of 5 mg. of diethylstilbestrol administered for one month or longer in 8 cases caused complete suppression of gonadotropic output. Discussing the relationship between the pituitary and the ovary, the author stresses the following points: 1. Gonadotropic hormone is utilized by normal ovaries but not by castrates or ovaries with impaired function, as a consequence of which much larger amounts are available for excretion. 2. Estrogens administered in small amounts increase the output of the luteinizing hormones. It is probable that peaks of estrogen production by the normal ovary have a similar effect. 3. The fluctuations in gonadotropin excretion during the normal menstrual cycle may be due either to variations in the amount of luteinizing hormone produced or to variations in the amount of gonadotropin utilized by the ovaries. 4. Large doses of estrogens administered to castrates have the opposite effect from small doses, suppressing or completely inhibiting gonadotropic output. The suppression by large doses may represent an exhaustion of secretory granules of the pituitary cells. It is possible that long continued smaller doses may have a like effect. Administered estrogens may have similar effects in normal females.

Journal of Infectious Diseases, Chicago

74:81-172 (March-April) 1944. Partial Index

- Inhibition of Human Isoagglutinins by Polysaccharide from *Ascaris Suum*. J. Oliver-González.—p. 81.
 Study of Mechanism of Relapse in Avian Malaria. J. E. Gajewski and A. L. Tatum.—p. 85.
 Bacteriology of Artificially Produced Necrotic Lesions in Oropharynx of Monkey. Florence C. Kelly.—p. 93.
 Studies on Virus Disease Originating in Guinea Pig Injected with Ticks (*Dermacentor Andersoni* Stiles). F. A. Humphreys, D. E. Helmer and R. J. Gibbons.—p. 109.
 Susceptibility of Cane Rat (*Zygodontomys*) and of Bush Rat (*Proechimys*) to Influenza Viruses. J. M. Weir.—p. 121.
 Study of Isolation, Cultivation and Pathogenicity of *Actinomyces Israeli* Recovered from Human Mouth and from Actinomycosis in Man. T. Rosebury, Lillian J. Epps and Ada R. Clark.—p. 131.
 Experimental Clostridium Welchii Infection. Lucile R. Hac and Agnes C. Hubert.—p. 150.

Journal of Lab. and Clinical Medicine, St. Louis

29:451-560 (May) 1944

- Effect of Chemotherapeutic Sulfa Drugs on Growth of α -Hemolytic *Streptococcus*. W. Bierman, G. Schwartzman and Sylvia I. Rosenberg.—p. 454.
 Effect of Certain Salts on Activity of Sulfacetamide. B. D. Pinck, Gladys L. Morton and Marjorie R. Mattice.—p. 462.
 *An Intradermal Test for Vitamin C Subnutrition. L. B. Slobody.—p. 464.
 Persistence of Falsely Positive Serologic Tests for Syphilis in Non-syphilitic Infections. A. E. Taussig.—p. 473.
 Deaths Following Use of Local Anesthetics in Transcricoid Therapy: Critical Evaluation. V. J. Derbes and H. T. Engelhardt.—p. 478.
 Role of Creatine in Cell Growth in Vitro and Its Use in Wound Healing. S. Caspe.—p. 483.
 Studies in Combined Diuretic Therapy. A. Ruskin and G. R. Herrmann.—p. 486.
 Human Serum Treatment of Atypical Pneumonia. E. M. Solomon.—p. 493.
 Case of Meningitis in Premature Infant Due to Proteolytic Gram Negative Bacillus. B. H. Shulman and Mary S. Johnson.—p. 500.
 Sternal Bone Marrow in Aged. C. Reich, M. Swirsky and Dorothy Smith.—p. 508.

Intradermal Test for Vitamin C Subnutrition.—Slobody made studies on animals and human subjects with various concentrations of a test solution. He shows that raising a 4 mm. wheal with 300th normal dichlorophenol indophenol solution will indicate vitamin C subnutrition states. Of 59 patients with blood vitamin C levels below 0.3 mg. the skin test times were more than 14 minutes in 54. In 10 children on vitamin C deprivation diets the blood levels fell and the skin test times became prolonged. The skin test times were then reduced to normal following administration of ascorbic acid. A skin test time of more than 14 minutes suggests definite body unsatura-

tion, from 9 to 13 minutes mild unsaturation and less than 9 minutes a normal amount of vitamin C in the body tissues. Different tests give information on various aspects of the vitamin C nutritional state and thus will not always correlate. The blood level reflects only recent dietary intake. The skin test parallels the degree of body saturation. Gross and biomicroscopic changes in the gums demonstrate actual tissue changes.

Journal-Lancet, Minneapolis

64:133-172 (May) 1944

- Types of Congenital Heart Diseases in 15,597 Autopsies. B. J. Clawson.—p. 134.
 *Patent Ductus Arteriosus. M. J. Shapiro.—p. 137.
 *Preventing Rheumatic Recrudescence: Consideration of Several Modes of Prophylaxis Available to Rheumatic Patient. Miriam M. Pennoyer and A. E. Hansen.—p. 139.
 Diphtheritic Myocarditis in Which Clinical Diphtheria Was Missed: Case Report. Alice Brill.—p. 142.
 New Interpretations of Allergy Cutaneous Tests. A. V. Stoesser.—p. 145.
 Growth and Development of Premature Quadruplets. W. E. G. Lancaster.—p. 147.
 Duodenal Obstruction in Newborn. O. S. Wyatt.—p. 152.
 Involvement of Colon in Newborn Infant. L. F. Richdorf.—p. 156.
 Appendix as Pediatric Problem. W. R. Shannon.—p. 158.
 Children's Psychosomatic Complaints and War. R. A. Jensen.—p. 161.
 Observations on Infantile Paralysis: Its Symptoms and Treatment. M. E. Knapp.—p. 164.

Patent Ductus Arteriosus.—According to Shapiro it is no longer sufficient to make a broad diagnosis of congenital heart disease, since with the present diagnostic aids it is generally possible to identify the lesion more exactly. This is particularly true of simple uncomplicated patency of the ductus arteriosus. Two types of patency of the ductus occur. Failure of closure may accompany a developmental defect of the heart and the open ductus may be the only possible escape for the abnormal circulation. In such instances the flow of blood usually continues as in the fetal circulation; that is, blood flows from the pulmonary artery to the aorta, thereby resulting in cyanosis. The other type of patency occurs as a simple failure of closure and is accompanied by no other cardiac abnormalities. It is this type of case which lends itself to surgical ligation. The author lists the following diagnostic criteria of patent ductus arteriosus: (1) history of heart disease from birth or early childhood; (2) no cyanosis or clubbing of the fingers; (3) stunting of growth in a small percentage of cases; (4) probable thrill over the pulmonic area; (5) characteristic machinery murmur; (6) increased pulse pressure; (7) enlargement of pulmonary artery and branches; (8) normal electrocardiograph; (9) probable enlarged heart. The great majority of patients with patent ductus arteriosus develop some cardiac difficulty in early adulthood. It is quite rare to examine a patient with patent ductus arteriosus over the age of 40. When the diagnosis of uncomplicated patent ductus can be made, surgery should be seriously considered, particularly in patients showing evidence of cardiac strain. In Minneapolis 19 patients with patent ductus arteriosus have been referred for surgical treatment. These patients ranged in age from 3 to 19 years. The ligation has been successfully carried out in 16 instances. Two patients died of hemorrhage. One child developed a blood stream infection about two months after operation, from which she subsequently died. The clinical results in the successful cases have been satisfying.

Preventing Rheumatic Recrudescence.—In the past, efforts to prevent recrudescences consisted in emphasizing certain generally hygienic fundamentals. A well balanced diet high in vitamins B and C, a warm, sunny climate where protection from dampness and chilling is possible, and the avoidance of respiratory infections have been stressed. Because such methods have been inadequate, investigators have adopted immunologic and chemotherapeutic measures. Pennoyer and Hansen utilized prophylactic sulfonamide therapy in the Pediatric Cardiac Clinic of the University of Minnesota Hospital with results similar to those of other workers over a period of from 1938 to 1943. Analysis of cases in which recurrences developed in spite of the sulfonamide therapy revealed that in most cases the drug was being taken irregularly or inadequately, or it had been temporarily discontinued by the patient. Although sulfonamide prophylaxis is not free from danger and requires close medical

supervision, it may reasonably be expected to prevent many rheumatic recurrences and materially affect the mortality associated with this disease. It consists in the prevention or attenuation of streptococcal infections by the continued maintenance of a low blood level of a sulfonamide. Alternative methods of prophylaxis such as immunization against streptococci and control of streptococcal infections with salicylates are available for patients who do not tolerate the sulfonamides.

Journal of Nat. Cancer Inst., Washington, D. C.

4:429-538 (April) 1944

- Administration of National Cancer Institute Act, Aug 5, 1937 to June 30, 1943 O. Marshino.—p. 429
Evaluation of Breast Cancer Therapy as Guide to Control Programs. J. W. Hawkins.—p. 445.
Chemical Treatment of Tumors: IX. Reactions of Mice with Primary Subcutaneous Tumors to Injection of Hemorrhage Producing Bacterial Polysaccharide. M. J. Shear, with technical assistance of A. Perault.—p. 461.
Experimental Roentgen Injury: I. Effects of Tissues and Blood of C3H Mice Produced with Single Small Whole Body Exposures. P. S. Henshaw.—p. 477.
Id II. Changes Produced with Intermediate Range Doses and a Comparison of Relative Susceptibility of Different Kinds of Animals. P. S. Henshaw.—p. 485.
Id III. Tissue and Cellular Changes Brought About with Single Massive Doses of Radiation P. S. Henshaw —p 503
Id IV. Effects of Repeated Small Doses of X Rays on Blood Picture, Tissue Morphology and Life Span in Mice P S Henshaw —p. 513.
Minimal Number of Anesthetic Treatments with Urethane Required to Induce Pulmonary Tumors P. S. Henshaw and H L Meyer.—p 523.
Changes in Adrenal Glands of Rats Following Exposure to Lowered Oxygen Tension A. J. Dalton, E R Mitchell, B. F. Jones and Virginia B Peters.—p. 527.
Origin of Hepatoma E of Strain C3H Mice Emily Walcott Emmart.—p. 537.

Journal of Nervous and Mental Disease, New York

99:457-888 (May) 1944. Partial Index

- Reconstructive Orthopedic Surgery for Disabilities Resulting from Irreparable Injuries to Radial Nerve. L C Abbott —p 466
Effect of Desoxycorticosterone in Epilepsy R B Aird —p. 501.
Cushing's Syndrome Evelyn Anderson and W Haymaker —p. 511.
Progressive Lenticular Degeneration. Olga Bridgman and F. S Smyth —p 534.
The Epileptic Driver. W. E. Carter —p 573
Papilledema (Choked Disk) and Papillitis (Optic Neuritis): Their Differential Diagnosis F. C. Cordes and S D Aiken —p. 576.
Anorexia Nervosa or Simmonds' Disease? Notes on Clinical Management with Some Points of Differentiation Between the Two Conditions. R. F. Escamilla —p. 583.
Some Neurophysiologic Aspects of Menstrual Cycle and Its Disturbances P. G. Guertner —p. 588
Sighing and Other Forms of Hyperventilation Simulating Organic Disease. P. A. Giebe and A Auerback —p 600
Wartime Ocular Neuroses D. O. Harrington —p 622
Immediate Care of Unconscious Patient H R Hathaway —p. 636.
Euthanasia T. Hinman —p. 640.
Treatment of Post-Traumatic Head Pain. O. W Jones Jr. and H A. Brown —p 668.
Aviation Medical Problems, with Special Reference to Altitude Pain. J. H. Lawrence —p. 703.
Subarachnoid Hemorrhage Due to Intracranial Rheumatic Aneurysm. S. Lindsay —p 717.
Hypophysectomy in Cushing's Disease (Report of Case Operated on by Dr. H. C. Naffziger, December 1933) H Lisser —p 727.
Repair of Peripheral Injuries of Facial Nerve R C Martin —p. 755.
Acromegaly and Diabetes Mellitus H C Shepardson —p 862.
*Exophthalmos Secondary to Edema and Degenerative Changes in Orbital Tissues. M. H Soley, with assistance of Jean Hitch —p 865.

Exophthalmos Secondary to Edema and Degenerative Changes in Orbital Tissues.—Soley discusses the extreme degree of exophthalmos for which Naffziger recommended orbital decompression. At the thyroid clinic of the University of California a considerable number of patients have been encountered in whom exophthalmos has been a presenting feature, and yet the majority of these patients have had about the same degree of hyperthyroidism, the same size thyroids and the same levels of oxygen consumption as the average run of patients with thyrotoxicosis in whom exophthalmos was not prominent. The author reviews the history of 37 patients with severe exophthalmos. The symptoms of exophthalmos were "pop-eyes," excessive watering, photophobia, blurring of vision, either persistent diplopia or diplopia with eye fatigue, swelling about the eyes, conjunctival injection, scratchy lids, frontal headaches and pain on pressure against the eyeballs. The signs were exophthalmos, periorbital and scleral edema, injection of the scleras, widened palpebral fissures, lid lag, frequent winking

(probably due to drying and irritation of the globe), impaired convergence often more pronounced in one eye, and in the worst cases engorged retinal veins, papilledema and corneal ulceration. Twenty-five of these patients had thyrotoxicosis at the time their exophthalmos was a presenting complaint. Their basal metabolic rate, the size of their thyroid, their age and other factors did not differ materially from routine thyrotoxic patients. Special interest in the problem of exophthalmos probably accounts for the rather large number of patients who presented severe ocular symptoms early in the course of their disease before they were treated. The author believes it is important to segregate such patients and to consider the condition of their eyes with special care. If the patient has hyperthyroidism when first seen, x-ray therapy to the thyroid is preferred to subtotal thyroidectomy in order to allow a more gradual return to a healthy thyroid status and to avoid the complication of myxedema. However, if the goiter is large or nodular, operative treatment is still indicated and the patient should be reexamined frequently afterward. Indications for orbital decompression are changes in function of extraocular muscles (paresis or complete loss of function), impairment of vision, corneal ulceration or pronounced edema of the conjunctivas or scleras. Because progression of exophthalmos occurs in nearly half of all thyrotoxic patients who have subtotal thyroidectomy for hyperthyroidism, patients in this category should be watched most carefully following thyroidectomy.

Medical Annals of District of Columbia, Washington

13:133-166 (April) 1944

- Weil's Disease in District of Columbia: Report of 4 cases. B. Manchester, C. L. Larson and L. J. Thomas —p. 133
Some Medical Lessons of Mobilization. A. C. Christie.—p. 139.
Some Epidemiologic Aspect of Meningococcal Meningitis in District of Columbia. C. C. Dauer —p. 146
Rheumatic Orchitis Associated with Rheumatic Pericarditis and Effusion: Report of Case. A. Trasoff and D. H. Goodman —p. 149.

Michigan State Medical Society Journal, Lansing

43:353-448 (May) 1944

- Small Unrecognized Strokes: Common Cause of Illness in Older Persons. W. C. Alvarez —p. 359.
Small Diptheria Outbreak in Sturgis. F. A. Musacchio —p. 392.
Methods of Personality Study in Relation to Medical Practice. J. C. Whitehorn —p. 395.
Palindromic Rheumatism (Hench's Disease). J. G. Grego and H. N. Harkins —p. 401.
Wartime Obstetrics. E. D. Plasse.—p. 402.
An Interlocking Finger Bandage Which Needs No Anchor. H. H. Pool.—p. 406.

Military Surgeon, Washington, D. C.

94:243-324 (May) 1944. Partial Index

- Treatment of War Fractures. R. I. Harris —p. 246.
*Contribution to Treatment of Traumatic Peritonitis. B. Hejduk —p. 250.
Surgery in the Desert. A. E. Porritt —p. 255.
Early Medical Service in New Guinea. L. S. Engleberger.—p. 258.
Arteriovenous Fistula: Report of 4 Cases. W. C. Reed and W. F. Dillon —p. 261.
Cardiovascular Injuries in War. A. M. Master.—p. 265.
*Hemolytic Transfusion Reaction Due to Rh Factor. R. P. Howell and R. E. Hobbs —p. 269.
Osteoperiostitis Following Meningococcus Meningitis: Case Report. M. G. Brown and E. E. Gottdiener —p. 270.
Fundamentals of Facial Moulage. V. H. Dietz.—p. 271.
Surgical Plan of Tropical Station Hospital. M. N. Camp —p. 281.
Veterinary Oyster Inspection. A. H. Bryan.—p. 282.
Line of Duty. C. Stritzler —p. 286.
Traumatic Tenosynovitis in Training Camp. T. N. Volk —p. 293.
Prevention of 11y Borne Diseases in Islet and Atoll Warfare. L. S. Baer and R. F. Allen —p. 296.
Therapy of Tinea. R. N. Lawson.—p. 301.
Simple Field Test for Chlorides in Water. S. Kaye and J. C. Castillo.—p. 302.
Use of Engineer Stream Crossing Equipment to Transport Litter Patients. A. B. Ranney.—p. 303.

Treatment of Traumatic Peritonitis.—According to Hejduk, internal bleeding and shock are the commonest causes of death in abdominal injuries during the first twenty-four hours. Peritonitis is a later danger and follows a rupture of a hollow viscus or infection of the effused blood. The purulent contents of the abdominal cavity are removed either by dry wiping or by irrigation. Opinions about the effectiveness of these methods are divided. Hejduk worked for nine years

under a chief surgeon who was a partisan of radical irrigation and for seven years at a university clinic where only the drying method was employed. The drying of the abdominal cavity is simple, quick and efficient. Some employ this procedure in all cases of peritonitis, even in traumatic ones. The advantage of the drying method is that the infective material is not diluted and spread all over the peritoneum. Therefore even some partisans of irrigation prefer to perform drying in the early stages. In war surgery it has the advantage that it does not require special equipment and is therefore practicable even under primitive circumstances. The author thinks that in serious progressive cases of peritonitis or in cases with highly virulent infection, irrigation gives better results than the drying method. Also the intra-abdominal postoperative abscesses and fibrous intraperitoneal adhesions are less common after irrigation. He is convinced that lavage under pressure, provided it is done with from 30 to 50 liters of saline solution, as employed by Bakeš of Czechoslovakia, is the best method to remove quickly and gently liquid blood, blood clots, detached particles of viscera, gastric or intestinal contents, urine, particles of missiles or clothing found within the peritoneal cavity. Perforations of the intestine can easily be discovered during irrigation when the irrigating fluid becomes turbid. It is hoped that the average mortality of 8 per cent achieved by Bakeš with irrigation under pressure will in the future be lowered even more by the combined use of lavage and the administration of sulfonamide compounds or penicillin.

Hemolytic Transfusion Reaction Due to Rh Factor.—Howell and Hobbs describe a transfusion reaction which occurred in an army officer aged 45 who was given a transfusion following an operation. He had had two previous transfusions, the first in January 1938 with no reaction and the second in March 1938 followed by a severe chill and fever. The possibility that a reaction might occur due to Rh incompatibility was considered, but no anti Rh serum was available. The patient was given 400 cc. of citrated whole blood by the drip method over a period of ninety minutes. Forty-five minutes after the completion of the transfusion he had a severe chill. His temperature rose to 102 F. He developed jaundice, the icterus index rising to 62 units within sixteen hours of completion of the transfusion. In the next twenty-four hours he voided only 90 cc. of urine containing large amounts of urobilinogen. He recovered slowly, over a period of several weeks. Anti Rh serum was obtained, and it was found that the recipient's cells were Rh negative. Rh positive agglutinins were demonstrated in his serum. The donor's cells were Rh positive. The authors stress the necessity of determining the Rh factor in recipients of repeated blood transfusions.

New England Journal of Medicine, Boston

230:501-532 (April 27) 1944

- Androgen Control in Carcinoma of Prostate. J. P. Bowler and S. F. Pedley.—p. 501.
Socioeconomic Aspects of Dental Caries: Community and Individual Study of Dental Caries in Selectees. R. W. Hyde, with assistance of D. J. O'Connell and G. A. Lenzi.—p. 506.
In Vitro Action of Sulfamerazine, Phthalylsulfadiazine, Phthalylsulfamerazine and Phthalylsulfathiazole on Enteric Pathogens. F. B. Schweinburg and I. J. Yetwin.—p. 510.
Hematology. W. Dameshek.—p. 514.

230:533-566 (May 4) 1944

- *Alloxan Diabetes with Diabetic Complications. C. C. Bailey, O. T. Bailey and Rachel S. Leech.—p. 533.
Infections Associated with Epidemic of Primary Interstitial Pneumonia. C. B. Favour.—p. 537.
Hematology (concluded). W. Dameshek.—p. 542.

Alloxan Diabetes with Diabetic Complications.—Bailey and his associates describe the occurrence of diabetic cataracts in rabbits made permanently diabetic by the use of alloxan. Bilateral diabetic cataracts developed in four to six weeks in rabbits made diabetic with alloxan. The production of alloxan diabetes in rabbits depends on the dosage. Repeated injections of 20 mg. per kilogram were not sufficient to produce diabetes. Forty milligram doses produced diabetes within two weeks in 2 rabbits, suggesting a cumulative effect of alloxan with the larger dose. Microscopic studies of the pancreas in 2 rabbits immediately after the production of diabetes by the repeated

injection of 40 mg. of alloxan per kilogram revealed that some cells of the islets of Langerhans showed hydropic degeneration, others showed irreversible changes and some were essentially normal, whereas occasional cells were in the process of mitotic division. The pancreatic acini were normal. In rats the subcutaneous administration of 200 mg. of alloxan per kilogram is feasible for producing diabetes. The occurrence of cataracts and of diabetic acidosis and coma in the rat is reported.

New York State Journal of Medicine, New York

44:1057-1168 (May 15) 1944

- Early Diagnosis and Early Treatment of Congenital Dislocation of Hip. F. R. Thompson.—p. 1095.
Treatment of Pneumonia with Sodium Sulfapyridine and Sodium Sulfathiazole Administered Orally. E. H. Loughlin, R. H. Bennett, S. H. Spitz and Mary E. Flanagan.—p. 1103.
Cause of Psoriasis. A. E. Goldfarb.—p. 1111.
Importance of Latent Parenchymal Disease of Liver in Surgery. A. O. Wilensky.—p. 1115.
Pentothal Sodium Anesthesia in Major Surgery. D. Battaglia and B. A. Winne.—p. 1120.
Clinical Study of 165 Cases in Which Sodium Ethylal was Used as Hypnotic and Sedative. C. H. Nammack and Mary Finck.—p. 1124.
Simple Aphasia Study. H. M. Somberg and H. V. Ingham.—p. 1126.

Quarterly J. Studies on Alcohol, New Haven, Conn.

4:517-676 (March) 1944

- Intellectual Functions in Alcoholic Psychoses. Anne Roe and D. Shakow.—p. 517.
Expectation of Alcoholic Mental Disorder in New York State, 1920, 1930 and 1940. B. Malzberg.—p. 523.
Alcohol Problem and Law: I. Ancient Laws and Customs. E. G. Baird.—p. 535.
Role of Social Work in Treatment of Inebriates. Marjorie H. Boggs.—p. 557.
Youth, Alcohol and Delinquency. F. W. McPeck.—p. 568.
Pathologic Reaction to Alcohol: I. Review of Literature and Original Case Reports. R. S. Banay.—p. 580.
Classics of Alcohol Literature: Early Medical and Official Views on Rations of Spirits in Army and Navy of United States.—p. 606.

Rocky Mountain Medical Journal, Denver

41:297-360 (May) 1944

- *Curare as Adjuvant During Inhalation Anesthesia: Report of 50 Cases. S. M. Smith.—p. 313.
Transversalis Fascia: Neglected Layer in Abdominal Surgery. H. E. Campbell.—p. 317.
Bilateral Traumatic Dislocation of Hip. G. Whiston.—p. 319.
Hodgkin's Disease with Marked Eosinophilia. W. S. Williams and K. T. Neuberger.—p. 320.

Curare as Adjuvant During Inhalation Anesthesia.—According to Smith, curare has been subjected to a thorough pharmacologic study and a product has been obtained which seemed safe for human trial. It is known under the term "Intocostin." Curare has been used in convulsive states, in preventing fractures during metrazol shock and in the treatment of spastic disorders. Cullen in 1940, seeking an aid to anesthesia that would give ideal relaxation, administered curare to dogs. Griffith and Johnson reported its use on 25 patients anesthetized with cyclopropane. Smith administered curare to relieve the muscle spasm in poliomyelitis unanesthetized, and in cases anesthetized with pentothal sodium and with cyclopropane. He administered Intocostin in 1 case of tetanus and in 50 as an adjuvant during inhalation anesthesia. The typical curare action consists of an interruption of nervous impulses at the termination of the nerve fibers at the muscle cells. It probably consists in neutralization of the acetylcholine reaction which constitutes the fundamental neuromuscular stimulation mechanism. Intocostin seems to exert no effect on the heart or peripheral circulation. The maximum effect of curare when given intravenously seems to occur within one to two and a half minutes. Overdose leads to respiratory paralysis, the treatment for which is adequate artificial respiration with oxygen. Neostigmine and physostigmine are specific antidotes. The use of pentothal sodium only as an induction agent does not appreciably increase respiratory depression. Temporary relief of muscular spasm in poliomyelitis has been obtained by the use of curare alone and in combination with both cyclopropane and pentothal anesthesia. Curare appears to be one of the greatest aids introduced into the field of anesthesiology, but its use should not be indiscriminate. It should be administered by those thoroughly familiar with its actions.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian and New Zealand J. Surgery, Sydney

13:147-216 (Jan.) 1944

- Restoration After Excision for Malignant Disease. H. P. Pickerill.—p. 147.
Significance of Hypothenar Elevation in Movements of Opposition of Thumb. S. Sunderland.—p. 155.
Flexion of Distal Phalanx of Thumb in Lesions of Median Nerve. S. Sunderland.—p. 157.
*Voluntary Movements and Deceptive Action of Muscles in Peripheral Nerve Lesions. S. Sunderland.—p. 160.
Fractures of Facial Bones. B. K. Rank.—p. 184.
*Shattering Gunshot Wound of Elbow. J. Devine.—p. 208.

Deceptive Action of Muscles in Peripheral Nerve Lesions.—Sunderland describes trick or supplementary movements which have been observed in 170 cases of peripheral nerve injuries. These are voluntary movements which can still be effectively carried out even when those muscles customarily held to be responsible for their execution have been deprived of their nerve supply. Trick movements have been recorded in isolated and combined lesions of all the main peripheral nerves. The immediate recognition of such movements in peripheral nerve injuries is of considerable importance, since the failure to detect them will lead to false estimates of the extent of the nerve lesion and the progress of regeneration. This will in turn result in incorrect diagnoses and in unjustified optimism concerning either the progress of spontaneous regeneration or the efficacy of a surgical procedure designed and undertaken to facilitate regeneration.

Shattering Gunshot Wound of Elbow.—Devine reports a case in which the left elbow was a pulpy mass, and the forearm dangled by bridges of soft tissue anterolaterally. Three to 4 inches of the upper ends of the radius and ulna were missing, along with the ulnar nerve. The wound was blackened and soiled. The wound was subjected to débridement, covered with sulfanilamide powder and petrolatum gauze, and the whole limb from shoulder to hand was encased in a plaster. After operation 4 Gm. of sulfanilamide was administered daily for some days. Several days after the operation, pain and swelling of the hand necessitated removal and replacement of the plaster, which was done with the arm at an angle of about 130 degrees of flexion and slight pronation. This angle was chosen because the patient said that in the event of the hoped for ankylosis occurring this position would be the most advantageous position for him in his clerical occupation. The man was returned from Tobruk to Australia, and on the trip home he had the usual low grade infection of his wound and had his plaster renewed once. Six months after he had been wounded he had progressing union between the various fragments and was having active movements. Ten months after wounding he commenced clerical work. Now, eighteen months after his wounding, he performs his everyday tasks such as shaving and dressing without assistance and can hold a matchbox in his left hand. He has continued his clerical work.

Journal of Physiology, Cambridge

102:373-496 (April) 1944

- Anaphylaxis to Serum Proteins in Guinea Pig. L. B. Winter.—p. 373.
Study of Dehydration by Means of Balance Experiments. D. A. K. Black, R. A. McCance and W. F. Young.—p. 406.
Secretion of Urine During Dehydration and Rehydration. R. A. McCance and W. F. Young, with assistance of D. A. K. Black.—p. 415.
Renal Function of Newborn Infants. H. Heller.—p. 429.
Determination of Plasma Volume by Evans Blue Method: Analysis of Hemolyzed Plasma. C. J. O. R. Morris.—p. 441.
Changes Occurring in Plasma and Serum on Storage and Their Physiologic Effects. H. P. Gilding and Marjorie E. Nutt.—p. 446.
Reversibility of Carbohydrate and Other Changes in Rats Shocked by Clamping Technic. R. E. Haist and J. I. Hamilton.—p. 471.
Absorption of Serum Proteins from Intestine of Sensitized Guinea Pig. L. B. Winter.—p. 484.
Excretion of Diodone by Isolated Perfused Dog Kidney. A. Hemingway and A. Schweitzer.—p. 491.

Schweizerische medizinische Wochenschrift, Basel

73:473-496 (April 17) 1944. Partial Index

- Surgery of Bone Fractures. G. A. Preiss.—p. 473.
Suction Drainage of Cavities in Pulmonary Tuberculosis, with Special Consideration of Duration of Treatment. S. J. Leitner.—p. 475.
*Dimethyl Sulfate Poisoning. O. Merkelbach.—p. 481.

Dimethyl Sulfate Poisoning.—The list of industrial poisons issued by the Swiss Society of Industrial Chemistry in 1935 states that dimethyl sulfate is quickly absorbed and that it injures the renal and vascular system. According to Merkelbach dimethyl sulfate is colorless and insoluble in water. It has a boiling point of 187 C. and is rather volatile. It is an irritating and corrosive toxin and acts particularly on the respiratory organs. The onset of clinical symptoms is preceded by a latent period of several hours. In this respect its action is comparable to that of phosgene. Three types of processes resulting from dimethyl sulfate poisoning have been observed in animal experiments. Continuous chronic intake of small sublethal doses results in a cachectic condition as does phosgene poisoning. Clinically the following changes are differentiated: (1) local necrotizing corrosions, (2) corrosion of the air passages by vapors, (3) toxic impairment of kidneys, liver and focal areas of fatty degeneration in the myocardium. The latent period after exposure has been ascribed to an anesthetizing effect. The author gives a brief history of a man aged 35 who had been exposed to dimethyl sulfate vapors in his place of work. Immediately after exposure he felt irritation of the eyes and flow of tears and shortness of breath. Later dyspnea, cough and nasal secretion appeared. The following morning rales were detected over both lungs, and the pharynx, nose and conjunctivas showed inflammation. Six weeks after the exposure the man still complained of palpitation and dyspnea on exertion. This raised the question of whether the changes in the heart or other changes were responsible. The literature reveals that even fatal dimethyl sulfate intoxications caused only slight toxic lesions in the heart. Dimethyl sulfate may attack the central nervous system. Respiratory paralysis has been known to result from it. In the case under consideration the intoxication may have caused a disturbance in the vasomotor regulation.

Revista Clínica Española, Madrid

11:237-304 (Nov. 30) 1943. Partial Index

- *Investigation of Functional Renal Insufficiency in Addison's Disease. J. P. Lázaro, C. J. Díaz, F. L. Ruiz and M. T. Cantera.—p. 246.
Bronchial Asthma and Basal Metabolism: The Endocrine Factors in Pathogenesis of Bronchial Asthma. F. A. Rodrigues Nogueira.—p. 261.
Chronic Encephalopathy of Boxers. I. de Gispert Cruz.—p. 270.

Functional Renal Insufficiency in Addison's Disease.—Jimenez Díaz's concept that the chief biochemical derangement in Addison's disease is a deficiency in the deamination of amino acids by the kidneys was tested on 3 patients. After six days of salt free diet with administration of 6 Gm. of ammonium chloride in the last two days two twenty-four hour urine specimens were collected and pH , free acidity, organic acids, chloride, sodium and ammonium determined. In 10 normal subjects the use of salt free diet and ammonium chloride was followed by high urinary excretion of chloride and ammonium, little change, if any, in sodium excretion, lowering in pH and increase in free acid radicals in the urine. The acidosis elicited by administration of ammonium chloride was thus compensated for by excretion of acid radicals mainly in combination with ammonium. Sodium ion is retained in the organism preferentially to ammonium. Oppositely, in 3 cases of Addison's disease there occurred little change, if any, in ammonium urinary excretion, whereas sodium and chloride excretion were much increased. This was interpreted as an indication that, because of a deficiency in deamination, ammonium is not available for the excretion of acid radicals and the fixed base sodium takes its place. The increase in sodium urinary excretion was found to parallel the severity of Addison's disease, being pronounced in the severe cases and less so in the milder cases. This metabolic or functional renal insufficiency is not specific of Addison's disease, as shown by the finding of the same phenomenon in 1 case of chronic nephritis and in 2 cases of malignant hypertension.

Book Notices

Pharmacology and Therapeutics. By Maude B. Muse, R.N., A.M., Associate Professor of Nursing Education at Teachers College, Columbia University, New York. Fourth edition. Cloth. Price, \$3. Pp. 633, with 83 illustrations. Philadelphia & London: W. B. Saunders Company, 1944.

This book should be as useful as the earlier editions for nurses, provided it is supplemented by adequate lectures and references. The drugs are grouped in an understandable way for the person who must appreciate the actions and uses of drugs without the benefit of detailed studies in physiology, medicine, pathology and other subjects such as the medical student receives. For example, preparations which stimulate the central nervous system are placed in one chapter, those affecting the gastrointestinal tract in another. Obviously there may be some difference of opinion where one or more agents properly belong, but any classification will result in misfits. At the end of each chapter is a list of questions for the nurse to use in evaluating what she has learned. The author's awareness of a nurse's responsibility in drug therapy is evident from the statement that a nurse should have knowledge and skill to enable her "to carry out the doctor's orders effectively, administer drugs efficiently, recognize significant effects on patients and report or record these effects intelligently." The contents of this book should aid many nurses in the pursuit of such objectives, although they will have to place their own interpretations on controversial, doubtful or misleading statements which may be found occasionally. For example, the author asserts that the antiseptics in favor today for hand sterilization are mercury bichloride, a mixture of chlorinated lime and sodium carbonate, and alcohol. Obviously these agents are not so favored as they were a few years ago. Further, no agent now available and found practical can be depended on to "sterilize" the hands. Elsewhere is a statement that the Council on Pharmacy and Chemistry "recommends" surgical solution of mercurochrome for preoperative preparation of the skin. The Council does not "recommend" in the true sense of the word; it examines with a view to determine acceptability, by virtue of compliance with certain rules, for inclusion in New and Nonofficial Remedies. Sometimes statements may be found which "date" the section; thus "penicillin (is) all reserved for military use." The author should avoid unnecessary details. Again, unnecessary emphasis is given to treatments not yet generally recognized; for example, the use of liver extract in the treatment of diabetes. Perhaps competent advice from physicians would remove such sources of complaint. Apart from such faults the book can be used by nurses with some confidence that the material is conservatively presented and, if supplemented by lectures and references, will help them in their studies. The index is complete.

Expectantly Yours: A Book for Expectant Mothers and Prospective Fathers. By Marjo A. Castallo, A.B., M.D., F.A.C.S., Assistant Professor of Obstetrics, Jefferson Medical College, Philadelphia, and Audrey Walz. Boards. Price, \$1.75. Pp. 110, with 16 illustrations by Helen G. Schad. New York: Macmillan Company, 1943.

This small book was written for the woman who wishes to understand the birth process and the medical care involved in the modern management of pregnancy and labor. It is written in an entertaining manner. It does not attempt to supplant the physician but provides sufficient information so that the patient can follow his instructions intelligently. Simple illustrations amplify the text. It can be read with profit by every mother or mother-to-be.

The Earliest Printed Book on Wine. By Arnald of Villanova, Physician, Surgeon, Botanist, Alchemist & Philosopher [1235?-1311] Now for the First Time Rendered into English and With an Historical Essay by Henry E. Sigerist, M.D. With Facsimile of the Original Edition, 1478. Cloth. Price, \$10. Pp. 41, with portrait. New York: Schuman's, 1943.

Arnald of Villanova was a brilliant physician of the middle ages. He was educated in a Dominican school and wrote in "miserable Latin." He practiced in the school of Montpellier. There have been many previous editions of his writings in German and in other languages. The present text provides a reproduction of the first German edition and an excellent translation into English.

A National Health Service. Presented by the Minister of Health and the Secretary of State for Scotland to Parliament by Command of His Majesty, February 1944. Ministry of Health, Department of Health for Scotland. American edition reproduced photographically from the English edition. Paper. Price, 75 cents. Pp. 85. New York: Macmillan Company; London: His Majesty's Stationery Office, 1944.

This is the so-called medical white paper—a statement by the minister of health of Great Britain, Mr. Willink, on his proposals for a national health service. This has been well described in the London letter in previous issues of *The Journal*. British physicians themselves have indicated that the white paper deals a little largely with generalities and somewhat too little with the necessary details on which the proposed service may fall. Essentially the white paper encourages the establishment of districts in which medical service would be rendered by a hospital, a group of physicians practicing as a group, a health center and general practitioners who would be feeders to the practicing units. One finds here a great deal of the jargon of propaganda for social medicine. The system is referred to consistently as "free," whereas of course it is merely provided by a system of taxation whereby the government spends the worker's money for him instead of having him spend it for himself.

Aesculapius in Latin America. By Aristides A. Moll, Ph.D., Secretary-Editor of the Pan American Sanitary Bureau, Washington, D. C. Cloth. Price, \$7. Pp. 639, with illustrations. Philadelphia & London: W. B. Saunders Company, 1944.

The author is at some pains to explain why he speaks of South America as Latin America, but he does not say why he called the book "Aesculapius in Latin America" instead of "Medicine in Latin America." Notwithstanding this somewhat too critical comment, the book is the most useful study of the growth and development of medicine in the Spanish and Portuguese speaking countries of America that has yet been made available. It required great study and immense reading as well as personal observation to assemble this useful book. The work is somewhat too profuse in the mere mention of great lists of names of competent workers; yet it serves at the same time to give a good over-all picture. The chapters on vital statistics, social security and distribution of physicians are to be especially commended. At a time when there is a far greater exchange of medical learning and scholarship between the American nations than ever before, this book will serve as a most useful introduction to our southern neighbors.

The Wounded Get Back. By Albert Q. Maisel. With a foreword by Ross T. McIntire, Rear Admiral, Medical Corps, U. S. N. Cloth. Price, \$2.50. Pp. 230. New York: Harcourt, Brace and Company, 1944.

The exceptional privilege was accorded Mr. Maisel of six months in the South Pacific, traveling on hospital ships and in navy planes, visiting first aid stations and all types of navy hospitals. This experience he reflects fully, and he tells his story with rare narrative ability. Anecdotes and cases collected from officers and men lighten the text. Unfortunately there are no illustrations, whereas in the field discussed illustrations often tell far more to the reader than can be found in page after page of text. The book makes clear much of the recent application of military medicine, including, of course, burns, fractures, shark bites, dysentery, malaria and similar tropical troubles. Mr. Maisel's admiration for what the Navy has accomplished is unbounded, and there is hardly a hint of the inevitable failures that occur even under the best of circumstances.

The Clinical Value of Electrocardiography. By Irving J. Treiger, M.D., Assistant Professor of Medicine, University of Illinois. Foreword by James B. Herrick, M.D. Paper. Pp. 20, with 41 illustrations. Chicago: Presbyterian Hospital, 1944.

This atlas has the advantage of simplicity but the disadvantage of brevity. Its chief virtue, as pointed out in the foreword by Dr. Herrick, is that it places this method of study where it belongs: as a useful adjunct to the clinical examination. It may prove helpful to the student who wants a summary of the clinical application of electrocardiography; an important defect, however, is the lack of an account of precordial leads in general and their clinical application, as other precordial leads than the routine lead. It sometimes establish the only clues to a clinical diagnosis. The booklet is simply and clearly printed aside from some defects in the reproduction of the illustrations, which are not always adequately inked, for example figure 39A.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

MENOPAUSAL BLEEDING AND ENDOMETRIAL CANCER

To the Editor:—Patients with bleeding near or after the menopause are frequently referred to me. If the bleeding does not obviously come from the cervix in most instances I do a dilation and curettage and follow with about 1,500 milligram hours of radium. Of course if I know that there is a fundal cancer ahead of time, I advise surgery or, if the scrapings are suggestive of cancer at the time, I always get a biopsy and increase the radium, following with surgery. Recently one of my physician friends was rather upset because after I had given some radium to 1 of his patients she stopped bleeding for a while and then restarted. I told him that she would be all right, that this frequently happens and that the bleeding might not stop for six weeks or more. I also assured him that she had no cancer; she had a small, fairly firm, freely movable uterus with nothing suggestive of a cancer. I was not able to obtain a biopsy. He thinks this is a rather dangerous procedure and that I will overlook a cancer frequently this way and probably have overlooked one with this patient. I do not think so and have not got into any trouble previously. Please give me your opinion on this matter.

M.D., Alabama.

ANSWER.—It is presumed that a thorough curettement was performed before the radium was inserted into the uterus to rule out cancer of the endometrium. If this was not done, it should be done without delay or, better still, a hysterectomy should be performed. If, however, the insertion of the radium was preceded by a thorough curettement, and microscopic examination failed to reveal carcinoma, it is safe to wait. Frequently there is one episode of bleeding, sometimes two after the use of radium for castration purposes. Generally such bleeding is in the form of a prolonged menstrual period, but seldom does it last for as long as six weeks. If bleeding should persist this long following radium treatment, it is best to remove the uterus. A carcinoma can be overlooked occasionally in spite of a curettement, and carcinoma can arise after radiation therapy. Better results are obtained by using 1,800 milligram hours rather than 1,500 milligram hours.

EFFECT OF TESTOSTERONE ON ADULT MEN

To the Editor:—Is there any danger in the intramuscular injection of testosterone propionate? One of my colleagues told me that occasionally one gets an inhibition of the male hormone with just the opposite effect desired, namely the patient develops female characteristics. I have never seen this in the literature and wondered if there was any basis for it.

M.D., Mississippi.

ANSWER.—The injection of testosterone propionate frequently depresses the activity of the seminiferous epithelium when given to normal adult men. While this effect is temporary as far as is now known, recovery on cessation of treatment may be slow. This property should be taken into account in any plan for protracted treatment. By feminization it is presumed that gynecomastia is meant. This is an occasional response to testosterone propionate but is not known to be progressive or troublesome. More substantial breast growth has been recorded with large doses of methyltestosterone. Whether the difference between the methyltestosterone and testosterone propionate in this respect is a matter of dosage or of inherent peculiarity of the drugs is not clear. No other response to either agent could be described by the term feminization.

Depression of intrinsic androgen production probably occurs, but any expressions of this are of course masked by the effects of the androgen given. Evidences of normal intrinsic androgen production in any individual, however, create a presumption against the usefulness of any androgen.

PRESERVATION OF SKIN GRAFTS

To the Editor:—Please send me available information on delayed skin grafting; that is, grafting skin after it has been removed from the donor for twenty-four to thirty-six hours. Rembert Bayne, M.D., Selma, Ala.

ANSWER.—Little has been written on the preservation of skin grafts for practical use up to the present time. A comprehensive digest by Davis can be found in Lewis's System of Surgery, volume 5, chapter 8, pp. 62-64. A paper read by Dr. Jerome P. Webster at the recent meeting of the American Surgical Association on "Refrigerated Grafts" will soon be published in the *Annals of Surgery*. This presents a simple technic and brings the subject up to date.

HERNIATION OF STOMACH INTO THORACIC CAVITY

To the Editor:—A woman aged 63 has had postbeal gastric distress of a variable degree throughout most of her life. Four years ago an x-ray examination revealed that she had a herniation of approximately one third of her stomach up through the diaphragm into the thoracic cavity. This from all evidence was on a congenital basis. For the past four years the intractable pain from the postbeal muscular spasm has grown progressively worse in spite of conscientious efforts by correct diet, weight reduction, breathing exercises and upright position to alleviate the symptoms. The pain is so severe that it reflexly affects her heart (as well as some direct pressure) and her blood pressure (which is elevated at all times to an average of 160/100). Thorough examination with the electrocardiograph shows moderate change in the cardiac musculature but nothing serious at present. The pain has become so severe that recent attacks confine her to bed for several days. Advice has been received indirectly that some clinics have employed phrenicotomy in this condition with considerable success, especially in relief of the pain from the muscular spasm. Kindly advise as to specific references on this work as well as current medical opinion pro and con on this procedure for the condition in question.

J. Kendall McBane, M.D., Alameda, Calif.

ANSWER.—Whether the herniation is of congenital origin or acquired makes little difference perhaps from a practical standpoint. The fact that nonsurgical measures have proved unsuccessful, that the patient's condition has grown progressively worse and that there is no valid contraindication to operation from the standpoint of the general condition would apparently justify surgical intervention.

There is, of course, a difference of opinion regarding the indications for and against phrenicotomy in the treatment of this condition. Surgeons with a large experience in this field do not advocate phrenicotomy when radical repair can be effected. Temporary interruption of the phrenic nerve by crushing is of value as a procedure preliminary to radical operative repair, especially in the surgical treatment of partial thoracic stomach resulting from congenital short esophagus. In cases in which reestablishment of function of the diaphragm is not desirable because of the danger of recurrence of the hernia, the paralysis can be made permanent by cutting or avulsing the phrenic nerve. Such procedure preliminary to radical surgery is also often of value in the treatment of incarcerated and strangulated hernias because it prevents spasm of muscle and causes relaxation of the hernia ring.

Phrenicotomy as the only procedure does not completely relieve the symptoms. However, with proper dietetic supervision such patients may get along fairly well. This procedure is not applicable to hernias in which a large portion of the stomach is in the thorax, causing pressure on the heart and lungs, nor is it applicable in any case in which the intestine is involved in the hernia. Should the patient refuse to submit to a major operation, temporary interruption of the phrenic nerve might be recommended in the hope that such a procedure would control the painful manifestations at least.

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ANESTHESIA FOR CESAREAN SECTION IN WOMAN WITH MYOCARDITIS AND RENAL DISORDER

To the Editor:—What is the proper anesthesia to be used in cases of cardiorenal conditions? Several months ago I was asked to administer an anesthetic for cesarean section. The patient suffered from pronounced myocarditis and renal condition. Respiration was poor and the patient was rather cyanotic. The heart action was weak and irregular. The attending surgeon suggested local or spinal anesthesia. However, after discussion we decided on general anesthesia. Ethylene with a high percentage of oxygen and a small amount of ether was given. The operation was performed without mishap. The patient's condition was improved at the finish of the operation. Respiration and pulse were better. Oxygen was administered at the bedside. The patient and baby are doing well. I wish to know if the course pursued in this case was correct.

Bernard Ploch, M.D., St. Louis.

ANSWER.—Choice of the anesthetic agent and method involves factors other than the patient's condition. One of the most important of these factors is the skill and judgment of the available anesthetist. Judging from the description of the case and the successful outcome of the operation for mother and child, the choice of anesthetic agent, the method of administration of it and the ability of the anesthetist were satisfactory.

Patients with cardiorenal disease should not be subjected to anoxia. While they tolerate small amounts of ether well, they may not tolerate large amounts of it. Ethylene is an excellent anesthetic agent for patients who are in poor condition if it is administered with a high percentage of oxygen. Spinal anesthesia was no doubt contraindicated in this case, although the patient might well have been operated on after infiltration of the line of incision with a local anesthetic agent. Using local anesthesia, the newborn child seldom needs as much attention or resuscitation as he does when cesarean section is done under

general anesthesia. The immediate postanesthetic administration of oxygen was good prophylaxis. Certain other anesthetic agents or methods, such as intravenous anesthesia and chloroform by inhalation, obviously are contraindicated in a case like this.

PROBLEMS OF MALE MATURATION AND ANDROGEN ADMINISTRATION

To the Editor:—Two youths aged 19 and 21 have recently requested information on the advisability of taking male sex hormone. The younger of the two is normal in every way, but his voice at times changes from its normal baritone to that of a preadolescent boy. In an attempt to keep his voice from changing he apparently strains his voice in talking to the point that he often loses it entirely. Repeated examination of his throat has failed to reveal any pathologic condition. His physique, distribution of body hair and mentality are all normal for a person of his age. The older boy has almost no beard, talks girlishly, tires quickly on attempting normal male sports, and acts, in his own words, "like a sissy." Except for the absence of a beard he appears physically normal in every way. Both these young men have a normal attitude toward their own and the opposite sex. There are apparently no homosexual traits in either of them. Since they are both entering medical school early in the coming year they are anxious to do something as soon as possible to get these "abnormal" conditions corrected. Would testosterone help these young men, and if it did would its effects continue after medication was stopped? If indicated, what size dose should be given and how often? Any suggestions about the handling of these cases would be appreciated.

M.D., Virginia.

ANSWER:—There is no information as to the effect of androgens in further deepening or stabilizing the voices of men with normal sex function. While it is possible that some larynxes require a concentration of androgens higher than that provided by normal intrinsic androgens to effect puberal changes, such a phenomenon is as yet undescribed. The fact that a baritone voice is present at times in this subject suggests that the full puberal impulse has been given to the larynx and that more help might come from voice training than from androgen therapy. If such training is ineffective, however, and the matter is of serious importance, testosterone propionate could be given for a period of two to three months. In this event the sperm content of the semen should be followed. The writer would hesitate to see any profound depression of spermatogenesis protracted over any period longer than two to three weeks, although he recognizes that others might well take such an influence less seriously in view of the recovery of spermatogenesis normally made on cessation of androgen administration. Any effect on the voice would in all likelihood be sustained to a large extent after treatment was stopped. The difficulty is more likely to lie in getting any effect.

The second boy similarly presents a difficult problem. Maturation of beard hair is usually slow in some normal men and may never exceed scanty amounts. Beard hair in the hypogonadal male responds slowly to testosterone propionate and other androgens, and even after months of treatment the yield may be surprisingly meager. Assuming that the testes are normal in the patient in question and are forming spermatozoa properly, protracted treatment with testosterone with its depressing action on the testes should not be risked to secure greater beard growth. "Girlish behavior," even when associated with latent or overt homosexuality, is not readily influenced by the androgens. If the matter is serious, psychiatric care should be sought. Physical inefficiency in this boy might better be dealt with by systematic physical training than by androgens. If reexamination leads to any evidence for mild or partial testicular insufficiency better than that already described the answer would be modified accordingly.

SULFONAMIDES AND HEPATIC DAMAGE

To the Editor:—I have been recently called on to treat a patient for acute cholecystitis with obstructive jaundice of one month's duration due to choledocholithiasis. The patient was unsuitable for operation because of poor cardiac function. At present she has fever ranging from 103 to 104 F. There was sharp disagreement about the use of sulfonamides in such a case, some feeling that they might be too hepatotoxic. What is the present status of this problem?

M.D., New York.

ANSWER:—It is now generally agreed that the sulfonamides on rare occasions may provoke clinical evidence of hepatic damage. This refers particularly to the occurrence of a toxic hepatitis with jaundice. However, when careful liver function studies have been employed in studying this problem it has been revealed that liver dysfunction was not uncommonly induced by sulfonamide therapy. Watson and Spink in a study of 110 patients receiving sulfanilamide observed that the usual therapeutic doses of sulfanilamide were often associated with some evidence of dysfunction of the liver such as urobilinogenuria, elevation of the serum bilirubin or outspoken jaundice. In fact, 16 patients were observed to have jaundice as a result of ther-

apy with sulfanilamide. This incidence is higher than usually recorded and may be due to the individual cases selected for treatment. It is of some interest that a lower incidence of jaundice was noted among patients receiving sulfapyridine. Similar observations were made by Kapnick, Stewart and Lyons, who found a decrease in plasma prothrombin as one of the earliest signs of impending hepatic failure resulting from sulfonamide therapy.

While sulfonamide therapy may cause hepatic dysfunction or less frequently severe damage to the liver, this should not deter any physician from administering sulfonamides when there are clearcut indications for their use. It is believed that sulfadiazine and sulfamerazine are less toxic for the liver than sulfanilamide. There is some evidence that one must be particularly cautious before initiating treatment with a sulfonamide when severe hepatic insufficiency is already present. Even in such cases sulfonamide therapy is warranted when an infection amenable to such treatment is present. This leads up to the question of inaugurating sulfonamide therapy in a patient with an obstructive type of jaundice due to a stone in the common bile duct. Such patients often have hepatic dysfunction and morphologic changes in the parenchyma of the liver. A cholangitis is not uncommon. Sulfonamides, administered orally or parenterally, are excreted into the bile. On the other hand, such treatment is often accompanied by disappointing results. The nature of the infection precludes successful therapeutic results because of the presence of pus, detritus and dead microorganisms which inhibit the action of the compounds. Not infrequently *Escherichia coli* is the predominating species of bacteria present, and some strains are notoriously resistant to the antibacterial action of the sulfonamides. In conclusion, a physician may face the problem of administering a drug that may accentuate hepatic dysfunction and in most instances fail to effect the clinical course of the disease, namely infection associated with choledocholithiasis.

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THERAPY OF UNDULANT FEVER

To the Editor:—A case of undulant fever of short duration (to the best of my knowledge about six weeks) fails to respond to vaccine or sulfonamide therapy. Chills, fever (from normal to 100 F. in the morning to 104.5 F. in the afternoon) and severe diaphoresis persist. The vaccine, has been given in 1 cc. doses every third day. So far I have not increased the dose. Sulfathiazole caused nausea and vomiting, sulfadiazine caused headache and sulfanilamide caused severe urticaria, all being given in 1 Gm. doses four times a day. These reactions appeared in thirty-six to forty-eight hours. Sulfadiazine was kept up for three days in spite of headache without any change in the temperature. I have started sulfanilamide again in 0.32 Gm. doses three times a day to see if the urticaria was really due to the drug or to some food allergy. The sulfonamides were accompanied by sodium bicarbonate. Do you have any suggestions?

H. Y. Fredrick, M.D., Westfield, Wis.

ANSWER:—It is difficult to see why vaccine therapy should be of any definite benefit in a case of acute brucellosis of only six weeks' duration. On the other hand, sulfonamide therapy when given in adequate doses for a period of several days has been associated with a termination of fever and the eradication of a bacteremia. Obviously, a correct diagnosis must have been established prior to therapy. This statement is made in view of the fact that, of all the infectious diseases, brucellosis constitutes an infection the diagnosis of which is difficult to establish with certainty unless the organisms have been isolated from the tissues or body fluids.

Favorable therapeutic results in some acute cases have been obtained with any one of the commonly used sulfonamides. Since the patient under discussion appears to tolerate sulfadiazine reasonably well, except for the headaches, this drug may be given in doses so that a blood concentration of at least 10 mg. per hundred cubic centimeters is maintained for at least two weeks. This will usually require an initial dose of 4 Gm. and then 1 Gm. every four hours day and night. In addition, a total of 12 to 15 Gm. of sodium bicarbonate may be given during a twenty-four hour period with an intake of fluid, so that the twenty-four hour output is 1 liter or more. If smaller doses of a sulfonamide are used, such as 0.32 Gm. of sulfanilamide three times a day, there is the possibility that the patient will receive no benefit and that the organisms will become sulfonamide resistant.

If the patient progresses into a chronic illness, without benefit from sulfonamide therapy, artificial fever therapy may be indicated with the use of one of the standard cabinets.

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A PANORAMIC VIEW OF THYROTOXICOSIS

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BOSTON

In 1923 I became interested in periodic health examinations and determined, for my own satisfaction, to discover whether or not they were of use. I believe that the periodic health examination method should be regarded seriously by the man in general practice as an important tool for clinical investigation. In light of present knowledge so little is known of the mode of origin of many diseases that to expect the periodic health examination to be very useful in preventive medicine is unsound. But it affords every doctor an opportunity to observe patients systematically over long intervals of time and thereby enables him to add new bits of medical knowledge.

To explore this idea further I have assembled a small group of patients with toxic goiter studied by this method. My attempt here is to give a narrative of this disturbance as an actual experience in their life cycle. My material consists of a group of 33 patients each of whom was thought not to have toxic goiter when first examined, and many were followed for a number of years after developing it.

THE TYPE OF INDIVIDUAL LIKELY TO DEVELOP TOXIC GOITER

The first point which seemed of interest was an attempt to discover whether any particular type of individual is likely to develop hyperthyroidism or whether it is a medical accident that may happen to any one. In this series there were 3 men. In analyzing the sex distribution in some 500 cases of exophthalmic goiter in Boston, Thompson and Means¹ found that about 20 per cent occurred in males, and Boothby,² reporting from the Mayo Clinic, found that about 15 per cent of the cases there were in the sterner sex; the small sampling reported here is a reasonable one from this particular point of view.

The age range of the group when they were first examined was from 65 years to 15 years, the range in height from 172.5 cm. (5 feet 8 inches) to 151 cm. (4 feet 11 inches) and the range in weight from 97.2 Kg. (214 pounds) to 46.8 Kg. (103 pounds). Therefore when they were "normal" as young or old persons they were either fat or thin and tall or short; even if one had scrutinized them with a most critical eye it would have been impossible to give any tangible

reason from their appearance for thinking that many of them were necessarily predisposed to the later development of thyrotoxicosis.

Six of these persons developed thyrotoxicosis under my own eyes and 4 had been observed periodically for several years beforehand. I knew their families, a good deal about their way of life, their social and financial problems and how they ordinarily seemed to meet the everyday adventures of existence. Only 1 of them might reasonably have been suspected of later developing hyperthyroidism; she was a prominent eyed, nervous young woman, highstrung and tense, and with 2 sisters believed to have thyroid disease.

Because of this experience, microscopic as it is, I find it difficult to agree with Warthin³ and to take recourse to the conception of a special hereditary predisposition to a "Graves' constitution" or with Moschowitz⁴ in his belief that the syndrome of thyrotoxicosis develops preponderantly in patients of the sensitive, emotional type. Rather would I say that thyrotoxicosis is a medical misadventure that may befall any one at any time. It is true that 4 of the patients had brothers or sisters with goiters—raising the familial aspects of the condition. On the whole, however, most goiter experts appear to agree with Means⁵ and with Joll⁶ in believing there is no real evidence that the disease is usually hereditary though inheritance may have a part—and indeed one of some importance—in its background.

THE PRECURSORS OF TOXIC GOITER

Four leads were perhaps suggestive as being precursory to what happened later. As has been mentioned, 4 patients had brothers or sisters with goiters; 7, when they were not toxic, had sufficiently developed thyroid glands to be palpable on ordinary routine physical examination; 13, excluding 2 with unmistakable signs of rheumatic heart disease, had readily audible systolic murmurs over the precordium; and 9, excluding 1 with rheumatic heart disease, had a blood pressure level on first examination higher than 140 systolic. From this meager evidence one might suspect that a "normal" individual who happens to have, when first examined, goiter in his family, a palpable thyroid gland, a precordial systolic murmur and a slightly elevated blood pressure may belong to the type most likely subsequently to develop thyrotoxicosis. But the evidence on this point is very flimsy. Sir Thomas Lewis⁷ once wisely remarked that there is no justification for the not uncommon belief that every patient who has an enlarged thyroid and tachycardia has incipient toxic diffuse

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goiter. Certain writers, he said, imbued with recent endocrinologic doctrines, are but too ready to regard every enlarged thyroid gland as an overacting gland; these writers seem unaware how frequently a palpable thyroid is present in soldiers and civilians who suffer from no symptoms.

Seventeen years ago I examined for one of the Boston colleges a group of 110 apparently healthy young women. Of these, 54 (49 per cent) appeared entirely normal, 9 (8 per cent) had a blood pressure reading of more than 140 systolic on casual examination, 27 (25 per cent) had palpable thyroid glands and 33 (29 per cent) had audible systolic murmurs.

TABLE 1.—Findings in a Group of Patients Examined Before They Were Considered to Have Thyrotoxicosis

No.	Sex	Family History of Goiter	Thyroid	Heart	Blood Pressure	Age	Weight, Kg.	Height, Cm.
1	♀	Sister had goiter	Not felt	Systolic murmur	160/90	65	65.5	161.3
2	♀	Negative	Not felt	Negative	130/70	53	97.2	156.5
3	♀	Negative	Not felt	Negative	145/80	57	68.8	167.5
4	♀	Negative	Not felt	Systolic murmur	160/105	55	84.0	163.1
5	♀	Negative	Not felt	Systolic murmur	170/100	53	65.0	152.0
6	♀	Negative	Not felt	Negative	160/90	46	....	170.0
7	♀	Negative	Not felt	Systolic murmur	140/70	44	46.8	160.0
8	♂	Negative	Not felt	Negative	110/70	43	67.0	....
9	♀	Negative	Not felt	Negative	130/80	43	54.5	161.9
10	♀	Negative	Not felt	Systolic murmur	135/100	39	66.5	162.8
11	♀	Negative	Not felt	Systolic murmur	140/100	33	49.5	154.0
12	♀	Negative	Not felt BMR—18	Negative	110/70	38	83.5	172.5
13	♀	Negative	Not felt	Negative	120/70	36	54.5	150.9
14	♀	Negative	Palpable	Negative	130/70	35	51.5	164.5
15	♀	Negative	Palpable	Negative	140/100	35	71.7	161.4
16	♀	Negative	Not felt	Systolic murmur	120/70	35	75.0	153.5
17	♀	Negative	Not felt	Systolic murmur	150/90	34	75.0	164.0
18	♀	Brother had goiter	Palpable BMR—2	Negative	100/70	31	50.0	160.3
19	♀	Sister had goiter	Not felt	Systolic murmur	.....	29	....	166.4
20	♀	Negative	Palpable	Systolic murmur	125/70	27	50.8	157.5
21	♀	Negative	Not felt	Negative	125/80	27	49.5	161.5
22	♀	Negative	Palpable	Negative	115/80	26	57.7	151.4
23	♀	Negative	Not felt	Negative	100/70	25	....	162.0
24	♀	Negative	Not felt	Negative	120/80	25	65.8	169.5
25	♀	Negative	Not felt	Negative	120/80	24	65.5	171.0
26	♀	Negative	Not felt	Rheumatic heart disease	120/60	24	65.9	162.0
27	♀	Sister had goiter	Not felt	Negative	.....	24	50.8	162.6
28	♀	Negative	Palpable	Rheumatic heart disease	140/70	23	61.5	168.4
29	♀	Negative	Not felt	Systolic murmur	105/80	20	52.3	163.2
30	♀	Negative	Not felt	Negative	115/75	20	57.3	165.0
31	♀	Negative	Not felt	Systolic murmur	106/70	19	55.5	153.5
32	♀	Negative	Palpable	Negative	110/70	17	66.5	153.0
33	♂	Negative	Not felt	Systolic murmur	100/60	15	....	168.7

The combination in different individuals of murmurs, palpable glands and increased blood pressure varied greatly; one young woman had all these findings, lacking only a history of goiter in her family to make of her a reasonable suspect according to this way of reckoning. During the past seventeen years she has married, has had three children and up to the present time has not developed hyperthyroidism.

THE EARLY MANIFESTATIONS OF TOXIC GOITER

A second interesting point was the manner in which the manifestations of thyroid toxicity seemed to become evident. Six patients appeared to develop symptoms of thyrotoxicosis suddenly: after infection in 2 instances, after an attack of asthma in another, after the mental shock of her husband's death in a fourth case, and for no obvious reason in the fifth and sixth. The 28

others, in contrast, appeared to develop symptoms uncomfortable enough to make them seek medical advice for hyperthyroidism with varying degrees of insidiousness—indeed so insidiously in 4 cases that the diagnosis was established through an incidental finding of an elevated metabolic rate only after prolonged observation lasting over a period of several years.

The possible role of infection in awakening thyrotoxicosis is so well recognized as not to be worth mentioning; certainly almost any infection may bring to light latent hyperthyroidism and may exaggerate the fully developed condition. Rosenow⁸ is the only bacteriologist who has claimed to find a specific organism that might produce it, and his observations have never received very serious consideration.

The relation of asthma to hyperthyroidism also has been commented on repeatedly. Indeed, Widal and Abrami⁹ once claimed that the asthmatic hyperthyroid could often be cured of asthma by irradiation of the thyroid gland, an observation which has not received wide confirmation.

Mental shock as a trigger mechanism is always brought up in discussions on the exciting causes of thyrotoxicosis. Bram¹⁰ believed that he discovered evidence of psychic trauma in 85 per cent of his cases; on the other hand, no great increased incidence of the disease was reported in England as an aftermath of the war of 1914-1918 when conditions might well have stimulated it, and no writer has yet claimed to prove that the weight of worry and emotional strain imposed on those developing thyrotoxicosis is measurably heavier than that imposed on the general population. Therefore it seems that all there is to say is that what actually caused hyperthyroidism to develop in any of the cases reported here is entirely unknown, just as is true of other cases described in the literature.

The age at which these patients developed thyrotoxicosis covered a wide span of years, but the majority developed it in the third and fourth decades. This also is typical, according to the tables of Thompson and Means¹ and the statistical analysis of Gardiner-Hill.¹¹

The physical changes that were encountered are readily predictable; in almost every instance there were varying degrees of thyroid enlargement, tachycardia, elevated pulse pressure and presence of a precordial systolic murmur or its exaggeration had it been audible previously.

The amount of weight loss varied. One patient lost 30 kilograms (approximately 66 pounds) in a short space of time, whereas others showed relatively little in the way of weight loss. The data on this point are unconvincing, since many of the patients were examined as "normal" individuals several years before they had hyperthyroidism and thus their exact weight when symptoms of thyrotoxicosis began is not known.

In glancing at the table the most striking feature noted is the frequency with which symptoms related to the cardiovascular system were encountered. The combination of nervousness—at best an ill defined term—breathlessness, palpitation and even cardiac decompensation was not infrequently found. This fact is worth emphasizing, because in the modern clinic

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TABLE 2.—*The Apparent Mode of Onset by Which Thyrotoxicosis Was Recognized and the Obvious Changes It Produced*

Case No.	Thyroid Palpable		Systolic Murmur		Blood Pressure		Age		Weight		Basal Metabolic Rate	Comment
	Before	After	Before	After	Before	After	Before	After	Before	After		
1	No	Yes	Yes	Yes	160/90	160/93	65	66	65.5	64.9	+21	Gradual onset of weakness and nervousness complicated by auricular fibrillation
2	No	Yes	No	Yes	130/70	140/80	58	63	97.2	66.3	+51	Became suddenly nervous at death of her husband and this exaggerated by death of her son; rapid loss of weight
3	No	Yes	No	Yes	145/80	180/70	57	60	63.8	62.6	+38	Gradual onset of shortness of breath and easy fatigue with nervousness
4	No	Yes	Yes	Yes	160/105	190/110	55	63	84.0	61.5	+53	Gradual onset of nervousness and weight loss apparently following an upper respiratory infection
5	No	Yes	Yes	Yes	170/100	185/115	53	59	65.0	65.0	+53	Gradual onset of nervousness and exophthalmos
6	No	Yes	No	Yes	169/90	185/115	46	59	.	65.9	+27	Gradual onset of nervousness and later exophthalmos
7	No	Yes	Yes	No	140/70	190/100	44	53	46.8	45.3	+70	Gradual onset of nervousness, developed later thyroid enlargement and exophthalmos
8	No	No	No	No	110/70	110/60	43	51	67.0	68.5	....	Precordial pain; basal metabolic rate of +60 an incidental finding
9	No	Yes	No	No	130/80	150/60	43	49	54.5	56.7	+55	Suddenly noticed nervousness and tachycardia after respiratory infection; a few months later became conscious of goiter
10	No	Yes	Yes	Yes	135/100	130/70	39	46	66.5	52.0	+52	Gradual onset of indigestion, later complicated by enlargement of thyroid, nervousness and palpitation
11	No	No	Yes	Yes	140/100	116/70	38	41	49.5	39.0	+33	Had symptoms of cardiac decompensation, exophthalmos noted; thyrotoxicosis discovered by basal metabolic rate
12	No	No	No	Yes	110/70	125/60	38	43	83.5	71.7	+24	Basal metabolic rate -18 when first seen; gradual onset of fatigue, nervousness and weight loss
13	No	Yes	No	Yes	120/70	150/62	36	43	54.5	45.4	+52	Basal metabolic rate +8 when first seen; sudden onset of nervousness, palpitation and weight loss at time of menopause
14	Yes	Yes	No	No	120/70	130/64	35	36	51.5	48.1	+34	Sudden onset of swelling of thyroid following tonsillitis with nervousness, tachycardia, exophthalmos and weight loss
15	Yes	Yes	No	Yes	140/100	130/90	35	40	71.7	65.0	+23	Gradual onset of nervousness, tremor and tachycardia
16	No	Yes	Yes	Yes	120/70	150/70	35	37	75.0	65.8	+32	Gradual onset of nervousness, tachycardia and weight loss
17	No	Yes	Yes	Yes	150/90	150/90	34	37	75.0	48.2	+62	Sudden onset; became suddenly nervous, developed palpitation and great loss of weight after an attack of asthma
18	Yes	Yes	No	Yes	100/70	130/70	31	33	56.0	57.2	+41	Basal metabolic rate -2 when first seen; gradual onset of increasing nervousness and tachycardia
19	No	Yes	Yes	Yes	..	125/70	29	30	....	60.5	+25	Gradual onset about six months before entry to hospital of nervousness, weariness, development of goiter and exophthalmos
20	Yes	Yes	Yes	Yes	125/70	130/70	27	29	56.8	55.0	+46	Basal metabolic rate +9 when first seen; gradual onset of increasing nervousness with palpitation and increase in size of thyroid
21	No	Yes	No	Yes	135/80	175/90	27	38	49.5	51.8	+60	Gradual onset of increasing nervousness, fatigue and palpitation; loss of 4 kg. in weight from maximum before illness began
22	Yes	Yes	No	No	115/80	132/70	26	39	57.7	60.5	+20	Gradual onset of nervousness and loss of weight (18.2 kg. from maximum during interval)
23	No	?	No	No	100/70	120/50	25	28	....	62.2	+28	Gradual onset of fatigue, tremor and palpitation
24	No	Yes	No	No	120/80	120/60	25	29	65.8	68.5	+40	Gradual onset of nervousness and undue fatigue complicated by slight diarrhea; finally noticed swelling in neck
25	No	No	No	Yes	120/80	140/80	24	36	65.5	72.2	+40	Gradual onset of attacks of precordial pain on exertion and nervousness, basal metabolic rate -9 five years before hyperthyroidism recognized
26	No	Yes	Yes	Yes	120/60	150/50	24	33	65.9	64.3	+44	Was known to have rheumatic heart disease, and finally hyperthyroidism was suspected
27	No	Yes	No	Yes	..	120/80	24	32	56.8	59.1	+35	Gradual onset of increasing nervousness and irritability with tremor and palpitation developing during previous year
28	Yes	Yes	Yes	Yes	140/70	140/70	23	31	61.5	64.5	+28	Was known to have rheumatic heart disease, and finally hyperthyroidism was recognized after several years' observation
29	No	Yes	Yes	Yes	105/80	130/70	20	33	52.3	51.3	+33	Gradual onset of nervousness exaggerated by automobile accident and later complicated by case of fatigue
30	No	Yes	No	Yes	115/75	140/60	20	24	57.3	54.0	+37	Gradual onset of increasing nervousness accompanied by loss of weight, shortness of breath and rapid pulse rate
31	No	Yes	Yes	Yes	106/70	159/60	19	25	55.5	49.1	+48	Gradual onset of nervousness and palpitation with slight dyspnea on exertion
32	Yes	Yes	No	Yes	110/70	135/60	17	22	66.5	69.0	+71	Gradual onset of exaggeration of swelling in her neck followed by attacks of palpitation and weight loss
33	No	Yes	Yes	Yes	100/60	120/60	15	19	....	58.2	+67	Sudden onset four months previously of nervousness, palpitation, swelling in neck and exophthalmos

patients with hyperthyroidism masked by some other disease are the least easily recognized.

On the whole, there was nothing particularly remarkable about any of the cases and they add nothing new. They developed hyperthyroidism acutely or slowly; evidently it is a difficult matter to recognize "early" hyperthyroidism, probably because a patient developing it is at first stimulated and may feel unusually well. Only after it exists for some time so as to wear a patient down or unless it is notably acute does it make any one feel ill enough to seek medical advice, and by this time usually it is easily recognized.

TABLE 3.—Cases of Thyrotoxicosis with Recovery

Case No	Treatment	Date of Present Note	Comment
4	Subtotal thyroidectomy	4 years after operation	Feels well; has gained 15.5 Kg.
5	Subtotal thyroidectomy	17 years after operation	Death from abdominal carcinoma; at no time since operation any symptoms of hyperthyroidism
8	Subtotal thyroidectomy (thyrocardiac)	10 years after operation	Death in heart failure; at no time since operation any symptoms of hyperthyroidism
9	Subtotal thyroidectomy	19 years after operation	Feels well; at no time since operation any symptoms of hyperthyroidism; has gained 58 Kg
11	Subtotal thyroidectomy (thyrocardiac)	14 years after operation	Death in heart failure, at no time since operation any symptoms of hyperthyroidism
12	Iodine therapy alone	12 years after hyperthyroidism suspected	Continues well; no symptoms of recurrence; no change in weight
14	Subtotal thyroidectomy	11 years after operation	Feels well; at no time since operation any symptoms of hyperthyroidism; has gained 82 Kg.
20	Subtotal thyroidectomy	4 years after operation	Feels well; at no time since operation any symptoms of hyperthyroidism
22	Subtotal thyroidectomy	14 years after operation	Feels well; at no time since operation any symptoms of hyperthyroidism; has gained 86 Kg
23	Irradiation	18 years after hyperthyroidism suspected	Feels well; at no time since treatment any symptoms of hyperthyroidism
24	Subtotal thyroidectomy	17 years after operation	Feels well; at no time since operation any symptoms of hyperthyroidism; has gained 11.4 Kg.
28	Subtotal thyroidectomy (thyrocardiac)	7 years after operation	Feels well; at no time since operation any symptoms of hyperthyroidism; no change in weight
29	Subtotal thyroidectomy	11 years after operation	Feels well; at no time since operation any symptoms of hyperthyroidism; has gained 10 Kg
33	Subtotal thyroidectomy	6 years after operation	Feels well; at no time since operation any symptoms of hyperthyroidism; has gained 23.8 Kg; basal metabolic rate -7

THE IMMEDIATE RESULTS OF TREATMENT IN TOXIC GOITER

The third and most interesting point is what happened to the patients after they developed hyperthyroidism. Strangely enough, this is difficult to evaluate and is largely a matter of individual conjecture. In the days before the chances of successful surgery were as good as they now are and operations were not popular, clinicians paid much attention to the natural history of the disease. Its relapsing character was well recognized, and as long ago as 1913 H. S. Plummer¹² attempted to show that relapses and remissions tended to occur in fairly regular cycles and that consideration of this should play a part in the wisest choice of therapy. A few years later Barker¹³ introduced the thought that thyrotoxicosis, no matter how it is treated, tends to "burn itself out," whatever that phrase may

mean, and this tendency toward spontaneous improvement of symptoms must play a part in evaluating therapeutic results. Going back into even more ancient days, one can easily find observers who thought that the natural history of thyrotoxicosis was to end in myxedema and others who felt that complete recovery was the rule unless the patient died first of heart failure or vascular disease or from some intercurrent infection. Thus almost anything that may happen to a patient under treatment has been previously reported as part of the ordinary behavior of the disease, and all this makes the proper evaluation of therapeutic results the more difficult.

As thyroid surgery was developed, pathologists had opportunity to study thyroid glands removed under a variety of clinical conditions. It is bewildering to read descriptions of thyroid histology in connection with thyrotoxicosis and even more bewildering to attempt to compare the illustrations that have been used to demonstrate the different changes that have been described. In this country our pathologists in the main seem to be agreed that in the toxic glands they study there are likely to be changes in the character of the epithelium lining the acini and in the colloid, and that these changes are accompanied or followed by more or less fibrosis and infiltration of lymphocytes so that the normal architecture of the gland is altered in the direction of a chronic inflammatory process. They also agree that the age of the patient, the part of the country from which he comes and the duration of his hyperthyroidism bear a relation to what they see; and they know from the very convincing work of Rienhoff¹⁴ that the administration of iodine to the hyperplastic gland can produce recognizably regressive changes in its appearance. Beyond this point the going is harder, the underlying thyroid pathology of thyrotoxicosis is less certain, the various classifications of hyperplastic goiters are more difficult to appreciate and, to end up with, there are only the rarest reports of what the treated thyroid gland looks like at the patient's death.

When results of treatment are evaluated by clinicians, one runs afoul of uncertainty regarding the criteria that are used. It is clear that with any treatment two unpleasant happenings are encountered with varying degrees of frequency: the development of post-therapeutic hypothyroidism or of recurrences of thyrotoxicosis. And even in the cases that are reported as having been "cured" the definition of "cure" is debatable. Rasmussen¹⁵ has written an interesting paper in which he reminds us that because a patient with thyrotoxicosis subsequently develops a normal rate of metabolism, gains weight and is able to resume his work, yet no "cure" need have been accomplished. For such patients, he believes, are likely to be left with residual changes in personality and nervous makeup which he regards as part of the thyrotoxic syndrome and which he thinks are enduring and fully as disturbing as the metabolic aspects of the disorder.

Greene and Hurxthal¹⁶ have suggested a follow-up plan for the study of goiter which is admirable. In speaking of recurrences they say that to report a certain number of these episodes among a group of cases

14. Rienhoff, W. F., Jr.: Microscopic Changes in Thyroid Gland by Oral Administration of Desiccated Thyroid, *Arch Surg* 11: 487-507 (Aug) 1940; Changes Induced in Patients with Hyperthyroidism by the Oral Administration of Desiccated Thyroid, *Bull Johns Hopkins Hosp* 68: 538-542 (June) 1941.

15. Rasmussen, H.: Morbus Basedowi (Graves' Disease), *Acta med. Scandinav.* 91: 69-106 (Jan) 1937.

16. Greene, A. H., and Hurxthal, L. M.: Postoperative Follow-Up Study of 469 Thyrocardiac Patients, *New England J Med* 225: 811-816 (Nov 20) 1941.

12. Plummer, H. S.: The Clinical and Pathological Relationship of Simple and Exophthalmic Goitre, *Am. J. M. Sc.* 146: 790-795 (Dec.) 1913.

13. Barker, L. F.: Exophthalmic Goitre, *Internat. Clin.* 1: 1-16 (March) 1924.

within a given period of time does not mean much, for the chances of later recurrences are by no means ended. The final estimate of what thyrotoxicosis is and what it does to a patient cannot be made until the whole life history of that individual is known. It is from this point of view that I have attempted to study the cases in my particular group.

Four patients have been lost track of, and 1 developed a fatal postoperative thyroid crisis. Thus only 28 of the series yield information as to the late effects of thyrotoxicosis.

Table 3 summarizes the apparently satisfactory results obtained in 14 cases. All but 4 of the patients were followed for ten years or more after the diagnosis of hyperthyroidism was established, so that temporarily beneficial effects of treatment have not been included. Case 8 is of especial interest because the thyroid gland was examined by the pathologist when it was hyperactive and ten years later when the patient died.

THE END RESULTS OF TOXIC GOITER TREATED BY SURGERY

M. W. first entered the Peter Bent Brigham Hospital when he was 43 years old, a previously healthy business man who consulted the hospital for pain in his flank. He weighed 67 Kg. His neck was in no way remarkable. His heart seemed normal. His blood pressure was 110/70. He was found to have a double inguinal hernia, and it was suspected that he had a renal calculus.

He reentered eight years later. During the interval he had developed attacks of choking sensations at night and of precordial pain by day brought on by exertion. About eight weeks previously he had suffered a coronary occlusion.

He now weighed 68.5 Kg. The thyroid was not enlarged and still appeared in no way remarkable. The blood pressure was 108/62. There were no cardiac murmurs, though now the heart seemed slightly enlarged. An electrocardiographic tracing showed an abnormal form of ventricular complex. The basal metabolic rate was increased, falling with iodine from +60 to +40.

He had a successful subtotal thyroidectomy performed in two stages with a satisfactory drop in metabolic rate to -8. Microscopic examination of the gland revealed a picture entirely characteristic of primary hyperplasia.

Ten years after these operations and eighteen years after his first entry to the Peter Bent Brigham Hospital he returned there. He had felt entirely well until a year previously, having nine years of relief from all symptoms referable to his heart. Then, little by little, he noticed a sense of heaviness in his legs and of undue fatigue on exertion, soon followed by what he termed "uncomfortable spells" after a large meal and finally, for a few weeks, by attacks of nocturnal dyspnea accompanied by a feeling of tightness in his chest.

His weight now was 74.2 Kg. The thyroid was not palpable. The blood pressure was 130/90. There were no cardiac murmurs, though the heart had become notably enlarged. An electrocardiographic tracing gave curves typical of left bundle branch block. The basal metabolic rate was +14; the complete accuracy of this test is open to question since the patient found the mask difficult to bear, and thus probably the reported figure is higher than actually obtained. He died of heart failure after remaining in the hospital for nearly a month.

The thyroid gland weighed 11 Gm. On microscopic examination the picture was that of notable inactivity. The acini were dilated and filled with dense basic staining colloid. The epithelium was low cuboidal. At the periphery of the gland were small atrophic acini with desquamated epithelium.

It is remarkable how difficult it is to find case reports such as this. Here subtotal thyroidectomy induced symptomatic relief for the rest of the patient's life and

from that point of view represented a cure. Yet the thyroid gland after the operation did not regenerate and grow to look like the normal thyroid of a 61 year old man. On the contrary, it gave every appearance of atrophy and, had life continued long enough, might well have finally caused what Sir William Gull¹⁷ termed "a cretinoid state supervening in adult life." Scarcello and Goodale¹⁸ reported a somewhat similar case. Their patient, a young woman, had in 1926 "primary hyperplasia of the thyroid gland, follicular type," with a basal metabolic rate of +41. Subtotal thyroidectomy was performed. She died thirteen years later, eventually developing clinical myxedema. They found that the thyroid now was chiefly represented by disorganized masses of Hürthle's cells with lymphocytic



Fig. 1.—End result on the thyroid gland of thyrotoxicosis treated by surgery: Section of thyroid gland removed at operation, reduced from a photomicrograph with a magnification of 50 diameters. The gland is diffusely hyperplastic. There are numerous areas of epithelial hyperplasia with the formation of papillary projections. There is moderate general increase of connective tissue throughout. (Courtesy of Drs. Shields Warren and S. B. Wolbach.)

infiltration about them. Are such findings the usual pathologic end results of thyrotoxicosis treated by surgery and, if so, do they represent the best that can be hoped for?

(To be continued)

17. Gull, W.: On a Cretinoid State Supervening in Adult Life in Women, *Tr. Clin. Soc. London* 7: 180-185, 1874.

18. Scarcello, N. S., and Goodale, R. H.: Struma Lymphomatosa: Report of a Case Complicated by Myxedema, *New England J. Med.* 224: 60-64 (Jan. 9) 1941.

History of Dermatology.—Dermatology in the United States until the last quarter of the nineteenth century was a reflex of European dermatology; in the first half of the century English and French, and after 1860 German, especially Viennese. —Pusey, William Allen: *The History of Dermatology*, Springfield, Ill., Charles C Thomas, 1933.

THE SIGNIFICANCE OF THE FEBRILE REACTION IN INFLUENZA

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Some years ago one of us¹ in a paper on influenza said "One very firm impression I have formed, though I have no statistics to confirm it, is that the higher the initial temperature, the more quickly it is apt to subside."

This impression crystallized gradually as a result of repeated epidemics following the great pandemic of 1918-1919 and was emphasized by the experience of 1 patient in particular. This woman, a nurse, had an attack of influenza every January for five or six consecutive years. Every attack except one began insidiously and the temperature rarely exceeded 100 F., more often remaining under 99 F. Her stay in the hospital varied from twelve to fifty-six days, and an additional month was usually needed to make her fit for duty. Finally she had an attack which began with a sudden onset and a temperature of 102.6 F. The fever lasted less than two days. This time she was a hospital patient for only five days, and a week from the onset she was back on duty in good condition. The temperature curve shown in chart 1, although that of another patient, is almost identical with hers on that occasion.

In an effort to determine whether there is any ground for the impression that a high initial temperature is a good prognostic sign in influenza, a study of 50 cases of uncomplicated influenza was carried out at the North Carolina Baptist Hospital during the epidemic in the winter of 1943-1944.

Our criteria for making a diagnosis of influenza included pharyngitis, malaise, fever, chills or chilly sensations, backache or aching pains elsewhere, asthenia and a low or normal leukocyte count. The leukocyte count averaged approximately 6,000 per cubic millimeter, the highest count being 9,000 and the lowest 2,400. It is of passing interest that the 4 patients in the series who were treated with sulfonamides (sulfadiazine and sulfamerazine) had an average leukocyte count of only 3,900.

Half of the cases studied (group A) had a relatively sudden onset, while the other half (group B) were relatively insidious in onset. The 25 patients in the latter group had prodromal symptoms for one-half to three days before being actually confined to bed. The others became quite ill

within a twelve hour period. In all cases the maximum fever was reached within the first three days of the disease, and usually on the first day. Frank chills were more common in the group which had a sudden onset of symptoms.

From the Department of Medicine, Bowman Gray School of Medicine of Wake Forest College, and the North Carolina Baptist Hospital.
1. Johnson, W. M.: Influenza: Some Observations and Impressions, *South. Med. & Surg.* 98: 513-517 (Oct.) 1936.

The fact of major interest to us was the much more pronounced febrile response shown by the patients who had a sudden onset of symptoms. The temperature curve of A. K. (chart 1) is typical of this group of patients. The average maximum temperature in this group was 102.1 F. as compared with an average maximum temperature of 100 F. in group B (chart 2). In the former group the average duration of fever (temperature over 99 F.) was only 1.84 days, but in the latter group the average was 2.08 days. Although this difference is slight, it does indicate that high fever in uncomplicated influenza is not a bad prognostic sign.

Of more significance is the difference in the length of hospital stay for the two groups. The average period of hospitalization for the patients with the higher febrile response and sudden onset of symptoms was approximately two days shorter than that for those in group B. The average length of hospital stay for the patients in group A was only 4.88 days, as opposed to 6.44 days for the other group.

According to the Committee on the Costs of Medical Care, upper respiratory infections (including influenza) are responsible for approximately 62 per cent of disabling illness. It might be emphasized at this point that, after the period of complete disability caused by influenza is over, there is still a relatively long period of partial disability due to the so-called asthenic state. It was generally observed that the asthenic state persisted much longer in the group with the lower febrile response. Two patients in this group are known to have had relapses after discharge from the hospital, requiring at least an additional week of bed rest.

In view of the apparently more rapid recoveries from influenza in the group of patients showing the greater febrile response, we hope that fever therapy may be tried in a series of test cases during a future epidemic.

SUMMARY AND CONCLUSIONS

A series of 50 cases of influenza, 49 of which occurred during the winter of 1943-1944, have been studied.

Exactly one half of the cases were sudden in onset (group A), while the remaining half began insidiously (group B).

In group A an average maximum temperature of 102.1 F. was encountered, while in group B the maximum was only 100 F.

The average hospital stay for group A was 4.88 days, while for group B it was 6.44 days.

The postinfluenzal asthenic state was apparently more pronounced in group B, and at least 2 of the 25 patients in this group suffered relapses after discharge from the hospital.

Well controlled fever therapy may be of value in circumventing the asthenic state.

Sulfonamides are not indicated in uncomplicated influenza and apparently serve to enhance the preexisting leukopenia. Unless daily leukocyte counts can be done, the use of sulfonamides in uncomplicated influenza is contraindicated.

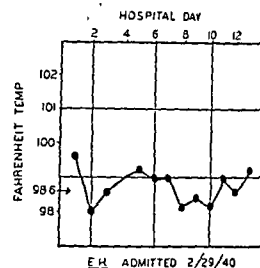


Chart 2.—Temperature of E. H., showing the febrile response typical of patients in group B.

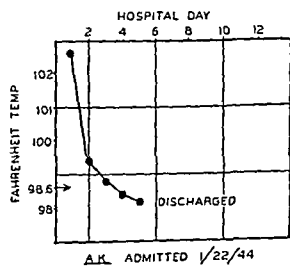


Chart 1.—Temperature of A. K., showing the febrile response typical of patients in group A.

IMMUNITY RESPONSES TO MIXTURES
OF DIPHTHERIA TOXOID AND
PERTUSSIS VACCINE

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The routine injection of diphtheria toxoid during the latter part of the first year of life has almost completely eliminated diphtheria in most localities; and, during the time that infants after the age of 7 months have been injected with potent pertussis vaccine, whooping cough morbidity and mortality have decreased at an encouraging rate.

Because diphtheria and whooping cough are most prevalent and serious in the first years of life, it seemed logical that immunization against the two diseases should be attempted at the same time by the injection of mixtures of diphtheria toxoid and potent pertussis vaccine. When this investigation was begun in 1938 only Bordet¹ had published a brief report on the use of a mixture; but he gave no data on immunity tests for either disease nor did he report clinical evidence of protection.

A satisfactory mixture of these antigens when injected subcutaneously should not be followed by a severe systemic or local reaction. It should produce a high incidence of prolonged protection against each disease. The duration of immunity should approximate that when each antigen is injected singly (at different times) or when injected simultaneously (separately). The component antigens should be stable for at least a year. If effective, the number of injections for the protection against these two diseases could thus be cut in half. The mixture should be safe for general use in institutions, health department clinics and private practice.

In a preliminary paper in 1941 we² reported the simultaneous administration of diphtheria toxoid and pertussis vaccine in young children. The antigens were administered in separate syringes or mixed in the same syringe. At the Evanston Health Department Immunization Clinic three doses of the two antigens were injected at the same time into 464 infants, beginning at 8 months of age. Because the negative Schick test and the 3 plus or 4 plus pertussis complement fixation test had been accepted by the greatest number of investigators as evidence of adequate diphtheria and pertussis antibody responses, we used them as evidence of conferred protection. It had been found³ that an appreciable percentage of infants did not develop antibodies from three doses of potent pertussis vaccine injected subcutaneously before 6 months of age at weekly intervals.

Systemic (febrile) and local reactions occurred in a small percentage of cases as they did with plain per-

tussis vaccine (15,000 million bacilli per cubic centimeter). Schick tests were read seventy-two hours after 0.1 cc. of Schick test material was injected intracutaneously on the flexor surface of the forearm. Diphtheria antitoxin concentration levels were determined early in the study, but the determinations were discontinued after it was found that they usually coincided rather closely with the Schick test readings. Pertussis agglutination tests (Mathieson technic and the rapid slide method) were performed but were excluded because the peak occurred weeks later than that of the complement fixation tests.

The preliminary Schick test (before the first injection) was positive in 96 per cent of the infants; the preliminary pertussis complement fixation test⁴ was negative in 95 per cent. When retested six weeks after the final dose, infants injected simultaneously (antigens separate) showed 98 per cent of the Schick tests negative, and 91 per cent had 3 plus or 4 plus complement fixation. Infants injected with the mixed antigens showed 95 per cent of the Schick tests negative, and 73 per cent had 3 plus or 4 plus complement fixa-

TABLE 1.—Immunity Responses After Separate Diphtheria
Toxoid and Pertussis Vaccine, Simultaneous

Total dose: 3 cc. (1, 1 and 1 cc.) diphtheria toxoid and 7 cc. (2, 2 and 3 cc.) H. pertussis vaccine (15,000 million bacilli per cubic centimeter) separate

	Number Children Tested	Interval Between 3 Doses, Weeks	Negative Schick Test, per Cent	3+ or 4+ Pertussis Complement Fixation, per Cent
St. Vincent's Orphanage	160	1	91	69*
Evanston Health Department	98	3	97	97†

* Three weeks after a "stimulating" dose of vaccine (2 cc. 15,000 million bacilli per cubic centimeter), 71 per cent.

† One hundred per cent of the infants with complement fixations less than 3+ became 3+ or 4+.

tion. After a "stimulating" dose of 2 cc. of plain pertussis vaccine (15,000 million bacilli per cubic centimeter) all infants who had less than 3 plus acquired 3 plus or 4 plus complement fixation. Forty-four infants who had had negative Schick tests and 3 plus or 4 plus complement fixation after the injection of mixed antigens were retested one to two years later. Their Schick tests and pertussis complement fixation tests still showed high immunity responses; reversion of the tests had not occurred. Up to July 1944 none of these 464 infants inoculated between 1938 and 1941 were known to have developed either disease.

The investigation has been continued to determine which mixture, dose and time interval gave the highest immunity response without severe reactions. Various

4. To obtain blood from young infants for the complement fixation or agglutination tests, the infant lies on the abdomen. A foot (or hand) should be warm. The big toe or middle finger is rubbed with a sterile gauze square saturated with 70 per cent alcohol, then dried with sterile gauze. A large Hagedorn needle ($\frac{1}{16}$ inch) is removed from 70 per cent alcohol and wiped dry on sterile gauze. Just before the skin is pricked the toe or finger is constricted with the left thumb and index finger. With the cutting edge upward the needle pricks deeply opposite the base of the nail about 0.5 cm. from the lateral margin of the nail. The needle is brought upward toward the tip of the toe or finger, so that the incision is superficial where the needle leaves the skin. After the required amount of blood has dripped into a sterile tube, the incision is compressed with sterile gauze, as the foot (or arm) is raised. At the moment when the pressure is removed, a half width mercurochrome hundy tape is wrapped around the toe (or finger) at the incision. The dressing is kept dry and not removed within two days. This method, suggested by Dr. Daughtry-Denmark, has been used for years. Infection has never occurred.

From the Northwestern University Medical School and the Evanston Department of Health

1. Bordet, J.: Concerning Whooping Cough Vaccine, *Bruxelles méd.* 16: 503, 1936; personal communications to the authors.

2. Sauer, L., and Tucker, W.: Simultaneous Administration of Diphtheria Toxoid and Pertussis Vaccine in Young Children, *Am. J. Pub. Health* 32: 385, 1942.

3. Sauer, L.: The Age Factor in Active Immunization Against Whooping Cough, *Am. J. Path.* 17: 719, 1941

mixtures (plain and alum precipitated), various time intervals (one to four weeks) between the three doses, and various time intervals (six to twelve weeks) between the final dose and the immunity tests were used. An additional 1,507 infants were given injections at the Evanston Health Department Immunization Clinic and at St. Vincent's Infant and Maternity Hospital (Chicago). Of these, 648 were included in the tables.⁵ All were more than 7 months of age when the injections were begun. The average age was about 8 months. Injections were made in alternate upper arms, starting with the left. To retard absorption, to produce a maximum response and to lessen systemic (febrile) reactions, the separate (simultaneous) injections and the mixed (plain) injections were given superficially (just under the skin), so that a lump was visible at the site of injection. It was found that the alum precipitated mixture caused less frequent fluctuating areas (sterile abscess) when each dose was injected more deeply under the skin of the upper arms, with the needle directed distally. Practically the only interruption in the regular administration of the injections occurred in infants who contracted intercurrent diseases or who moved away. Those who failed to complete the series of injections were not included in the final tabulations.

STANDARD DIPHTHERIA TOXOID AND PERTUSSIS VACCINE, SEPARATE (SIMULTANEOUS)

In this series 1, 1 and 1 cc. doses of standard diphtheria toxoid and 2, 2 and 3 cc. doses of pertussis vaccine (15,000 million bacilli per cubic centimeter) were injected separately (simultaneously), with a weekly interval between the doses at St. Vincent's Orphanage and a three week interval at the Health Department Clinic. To determine when the peak of the 3 plus or 4 plus complement fixation test was reached, follow-up pertussis complement fixation tests were performed at one, three, six and twelve weeks after the final dose.

TABLE 2.—Immunity Responses After Diphtheria Toxoid and Pertussis Vaccine, Mixed

Total dose: 7 cc (2, 2 and 3 cc.) diphtheria toxoid and H. pertussis vaccine (15,000 million bacilli per cubic centimeter), mixed				
	Number Children Tested	Interval Between 3 Doses, Weeks	Negative Schick Test, per Cent	3+ or 4+ Pertussis Complement Fixation, per Cent
St. Vincent's Orphanage	33	1	91	66*
Evanston Health Department	79	3	97	72†

* The weekly interval was discontinued because pertussis immunity response was low.

† Three weeks after a "stimulating" dose of vaccine (2 cc 15,000 million bacilli per cubic centimeter), 95 per cent of the infants with complement fixation less than 3+ became 3+ or 4+.

The three week intervals between the three doses, and the six week interval between the last dose and the immunity test gave the highest pertussis immunity response. At the follow-up tests, six weeks after the last dose, 91 per cent of the one week group and 97 per

5. Infants injected with mixtures of the two antigens but not tabulated were in subgroups, injected either with another concentration (20,000 million bacilli per cubic centimeter), at another time interval between the doses (two weeks) or with other doses. To determine whether doses of 1, 2 and 3 cc. of the mixtures caused an immunity response different from that after the same mixtures injected in doses of 2, 2 and 2 cc., Schick and pertussis complement fixation tests were performed on comparable groups.

cent of the three week group were Schick negative; 69 per cent of the one week interval group, and 97 per cent of the three week group had 3 plus or 4 plus pertussis complement fixation. Seventy-one per cent of the one week interval group and all of the three week group who failed to show at least 3 plus complement fixation when tested six weeks after the last dose gave

TABLE 3.—Immunity Responses After Alum Precipitated Diphtheria Toxoid and Pertussis Vaccine, Mixed

Total dose 3 cc (1, 1 and 1 cc) diphtheria toxoid and H. pertussis (15,000 million bacilli per cubic centimeter), alum precipitated, mixed				
	Number Children Tested	Interval Between 3 Doses, Weeks	Negative Schick Test, per Cent	3+ or 4+ Pertussis Complement Fixation, per Cent
St. Vincent's Orphanage	102	1	83	77*
Evanston Health Department	139	3	98	92*
Evanston Health Department	97	4	98	91

* Three weeks after a "stimulating" dose of vaccine (2 cc 15,000 million bacilli per cubic centimeter), 100 per cent of the complement fixation tests less than 3+ became 3+ or 4+.

3 plus or 4 plus positive tests when retested three weeks after a "stimulating" dose of pertussis vaccine (2 cc of 15,000 million bacilli per cubic centimeter). None are known to have acquired either disease.

STANDARD DIPHTHERIA TOXOID AND PERTUSSIS VACCINE, MIXED⁶

In this series 2, 2 and 3 cc. of mixed antigens (0.5 cc. standard diphtheria toxoid and 15,000 million bacilli per cubic centimeter pertussis vaccine) were injected at one week intervals at St. Vincent's Orphanage and at three week intervals at the Health Department Clinic. The Schick test was negative in 91 per cent of infants injected at weekly intervals and in 97 per cent of the three week group. Three plus or 4 plus complement fixation occurred in 66 per cent of the one week interval group and in 72 per cent of the three week group. The weekly interval between the three doses was discontinued when the pertussis immunization response was found low. Ninety-five per cent of the infants of the three week group with complement fixation tests less than 3 plus became 3 plus or 4 plus when retested three weeks after the injection of a "stimulating" dose of pertussis vaccine (2 cc. of 15,000 million per cubic centimeter).

A total dose of 6 cc. (1, 2 and 3 cc.) of the mixed antigens was then injected into a group of infants at one month intervals. The pertussis immunization

6 The mixed antigens used in this investigation were prepared according to our detailed specifications, from 5 to 7 strains of H. pertussis recently isolated and standard diphtheria toxoid, by Parke, Davis & Co., Detroit. The bacilli were grown on Bordet Gengou medium containing defibrinated human (not animal) blood. Fresh "packed" red cells, obtained from the plasma bank, were diluted with an equal volume of sterile isotonic solution of sodium chloride (0.85 per cent). The growth was scraped from the cultured medium, suspended in 0.85 per cent salt solution containing merthiolate 1:5,000. After refrigeration at 5 to 10°C for several weeks it was cultured for sterility and examined microscopically for absence of contaminants. Each lot was standardized to contain 30,000 million pertussis organisms per cubic centimeter. An equal volume of diphtheria toxoid was added to the suspension so that 1 cc volume of final concentration contained 0.5 cc. of standard diphtheria toxoid and 15,000 million pertussis organisms. The alum precipitated mixture contained 10,000 million bacilli per cubic centimeter. Recently a new concentration containing 30,000 million bacilli per cubic centimeter has been used. A dose required half the volume (0.5 cc) and the local reactions were less severe.

response equaled that after the total dose of 7 cc. (2, 2 and 3 cc.) injected at three week intervals. A total dose of 6 cc. (containing a total of 3 cc. of standard toxoid and 90,000 million pertussis bacilli, i. e. 0.5 cc. standard diphtheria toxoid and 15,000 million bacilli per cubic centimeter), injected in 1, 2 and 3 cc. doses, at one month intervals, became the standard procedure when the plain mixture was used. No instance of severe systemic (febrile) or local reaction was reported. No infant in either group is known to have developed either disease.

ALUM PRECIPITATED DIPHTHERIA TOXOID AND PERTUSSIS VACCINE, MIXED

In this series 1, 1 and 1 cc. of alum precipitated mixed antigens (0.5 cc. of standard diphtheria toxoid and 10,000 million bacilli per cubic centimeter pertussis vaccine) were injected at one week intervals at St. Vincent's Orphanage and at three week intervals at the Health Department Clinic. The total dose of the pertussis vaccine was 30,000 million bacilli. Three plus or 4 plus pertussis complement fixation reactions occurred in a higher percentage of infants than when the plain mixture (total dose of 90,000 million bacilli) was used.

TABLE 4—The Effect of Time Interval on Immunity Responses

Number Children Tested	Interval Between 3 Doses, Weeks	Total Dose	Negative Schick Test, per Cent	3+ or 4+ Pertussis Complement Fixation, per Cent
100	1	3 cc. separate diphtheria toxoid and 7 cc. H. pertussis vaccine (15,000 million bacilli per cubic centimeter)	91	69
98	3	3 cc. separate diphtheria toxoid and 7 cc. H. pertussis vaccine (15,000 million bacilli per cubic centimeter)	97	97
32	1	7 cc. mixed diphtheria toxoid and H. pertussis vaccine (15,000 million bacilli per cubic centimeter)	91	63
70	3	7 cc. mixed diphtheria toxoid and H. pertussis vaccine (15,000 million bacilli per cubic centimeter)	97	72
103	1	3 cc. alum precipitated diphtheria toxoid and H. pertussis vaccine (10,000 million bacilli per cubic centimeter)	83	77
139	3	3 cc. alum precipitated diphtheria toxoid and H. pertussis vaccine (10,000 million bacilli per cubic centimeter)	98	91
97	4	3 cc. alum precipitated diphtheria toxoid and H. pertussis vaccine (10,000 million bacilli per cubic centimeter)	93	94

The Schick test was negative in 83 per cent of the one week group and in 98 per cent of the three week and one month groups. Three plus or 4 plus complement fixation occurred in 77 per cent of the one week interval group, in 93 per cent of the three week interval group and in 94 per cent of the one month interval group.

All infants with complement fixation tests less than 3 plus became 3 plus or 4 plus when retested three weeks after a "stimulating" dose of pertussis vaccine (2 cc. of 15,000 million bacilli per cubic centimeter). No infant is known to have contracted either disease.

THE TIME INTERVAL FACTOR

Zoeller⁷ found a higher immunity response when the three doses of diphtheria toxoid were injected at three week intervals than when three equivalent doses were injected at weekly intervals. To determine whether the immunity response for each component antigen was higher with the three week interval than with the one week interval between the three doses, the infants were injected at one week intervals at St. Vincent's and at three week intervals at the Evanston Health Department Clinic. The percentage of negative Schick tests and 3 plus and 4 plus complement fixation for the two groups were summarized (table 4). In each of the three series (the simultaneous, the plain mixed and the alum precipitated antigens) the three week intervals between the three doses yielded a higher percentage of negative Schick tests than when the doses were given at one week intervals. Likewise, in each of the three series the pertussis complement fixations were more frequently 3 plus or 4 plus when the doses were injected at three week or one month intervals than they were after the one week interval between the three doses.

COMMENT

Systemic (febrile) reactions were transient and usually mild: the rectal temperature occasionally reached 102 F., rarely rose higher and was down within thirty-six hours. Local reactions took place in a small number of instances with a fluctuating area at the site of injection (sterile abscess) after the alum precipitated mixture, especially when injected at weekly intervals. Approximately 2 per cent of the injections were followed by such a local reaction.⁸

Simon and Craster⁹ were the first to report on the use of an alum precipitated mixture of the two antigens. They gave two injections of 1 cc. each, containing 10,000 million bacilli per cubic centimeter of "washed" (Kendrick-Eldering type) pertussis vaccine. Within eighteen months 4 of the 11 children known to have been exposed contracted whooping cough. They recommended four 1 cc. doses at monthly intervals. Since then Daughtry-Denmark¹⁰ and Kendrick¹¹ have published reports on the use of alum precipitated mixtures of diphtheria toxoid and pertussis vaccine. In his book "Whooping Cough" Lapin¹² said "The whole subject of mixed immunizations obviously requires a long follow-up period to determine which method retains antigenicity for a long time. . . . My own experience with combined pertussis vaccine-diphtheria toxoid, alum precipitated, and with a combined pertussis vaccine-diphtheria and tetanus toxoid, alum precipitated, has been disturbing in that a large percentage

7. Zoeller, C.: *Bacille diphtérique*, in Natan Larrier, L.: *Traité de microbiologie*, Paris, Gaston & Cie, 1934, vol. 2, p. 88.

8. In a recent discussion on the injection of alum precipitated antigens, J. P. Leake said (Vaccines and Serums. Indications and Procedure, J. A. M. A. 121: 852 [March 13] 1943) "In using alum precipitate, put the needle parallel with the humerus, so that the injection is as deeply subcutaneous as possible. It remains there and sometimes becomes fluctuant. If some physician who doesn't understand these things sees it, it may be incised. It shouldn't be incised. They are not abscesses. They will go away, in general, with practically no attention at all." After using this technique fewer fluctuating areas occurred, but usually a subcutaneous nodule could be palpated for more than three weeks at the site of each alum injection.

9. Simon, H., and Craster, C. Simultaneous Immunization with Combined Diphtheria-Whooping Cough Vaccine, J. M. Soc. New Jersey 38: 461, 1941.

10. Daughtry-Denmark, L. Whooping Cough Vaccine, Am. J. Dis. Child. 63: 453 (March) 1942.

11. Kendrick, P.: Use of Alum Treated Pertussis Vaccine, and of Alum Precipitated Combined Pertussis Vaccine and Diphtheria Toxoid for Active Immunization, Am. J. Pub. Health 32: 615, 1942.

12. Lapin, J.: Whooping Cough, Springfield, Ill., Charles C Thomas, Publisher, 1943, chapter 12, p. 77.

of severe reactions and alum abscesses were produced. Any public health measure must balance superior antigenicity against frequency and severity of reactions." The Committee on Therapeutic Procedures of the American Academy of Pediatrics¹³ cautioned "More local reactions are apt to occur after combined vaccine injections, especially of the alum precipitated toxoids. There is a sharp sensation felt after the injection, and local redness comes on with pain. Nodulation is extremely common and abscesses may occur." Notwithstanding an occasional fluctuating area, many pediatricians prefer alum precipitated antigens because the volume of each dose is small. When standard diphtheria toxoid and pertussis vaccine, mixed, is used a "stimulating" dose of 2 cc. of pertussis vaccine (15,000 million bacilli per cubic centimeter) may be injected subsequently, preferably before the child enters school.

SUMMARY

1. After standard diphtheria toxoid and pertussis vaccine, mixed, 97 per cent of the infants, injected with three doses at three week intervals, had negative Schick tests; 72 per cent had 3 plus or 4 plus pertussis complement fixation.

2. After a "stimulating" dose of 2 cc. of pertussis vaccine (15,000 million bacilli per cubic centimeter) 95 per cent of the infants with less than 3 plus pertussis complement fixation after standard diphtheria toxoid and pertussis vaccine, mixed, developed 3 plus or 4 plus reaction.

3. After alum precipitated diphtheria toxoid and pertussis vaccine, mixed, 98 per cent of the infants injected with three doses at three week intervals had negative Schick tests; 92 per cent had 3 plus or 4 plus pertussis complement fixation.

4. A fluctuating area (sterile abscess) followed 2 per cent of the injections of alum precipitated diphtheria toxoid and pertussis vaccine, mixed.

5. No infant so injected during the past five years with either mixture (plain or alum precipitated) is known to have contracted either disease.

CONCLUSIONS

A comparison of the immunity responses (negative Schick tests and 3 plus or 4 plus pertussis complement fixation tests) after three doses of mixed diphtheria toxoid and pertussis vaccine (plain or alum precipitated) shows that infants can be immunized successfully against the two diseases at the same time.

Although the immunity responses are somewhat higher with the alum precipitated mixture, using one third of the total number of *H. pertussis* bacilli, the occurrence of a sterile abscess following 2 per cent of the injections makes the plain mixture the product of choice.

636 Church Street.

13. Toomey, J., Hoyne, A.; Huenekens, E.; Reading, W.; Schick, B., and Thelander, H.: Report of the Committee on Therapeutic Procedures, American Academy of Pediatrics, November 1943, p. 17.

Water Balance.—Water is a vitally important factor in nutrition. Measured by the urgency of demand and the promptness with which disaster follows failure of supply, it is of greater importance than the ordinary foodstuffs and is second only to oxygen. It is the vehicle which transports to the cells the nutritive elements and carries away the waste products of metabolism; it furnishes the medium in which all intracellular chemical changes take place.—McLester, James S.: *Nutrition and Diet in Health and Disease*, Philadelphia, W. B. Saunders Company, 1943.

THE TREATMENT OF FILARIASIS (WUCHERERIA BANCROFTI)

WITH LITHIUM ANTIMONY THIOMALATE

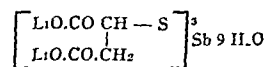
H. W. BROWN, M.D.

NEW YORK

Filaria infections and elephantiasis have not been of especial concern to American physicians despite the widespread distribution of this condition throughout the world. Only at Charleston, S. C., the endemic focus of the United States, has the disease been an immediate problem. The global nature of the present war, however, has exposed our armed forces to diseases not commonly present in the United States, and recent reports¹ indicate that our armed services are exposed to filaria infection and that numbers are becoming infected. Since this infection may have an incubation period up to a year or more and since it may lie quiescent for years, not only military but civilian doctors as well may have to cope with it in this country in returning service men.

Numerous drugs have been tried in the treatment of early filarial infections. Occasionally the treatment has resulted in a temporary decrease in the number of microfilariae circulating in the blood stream but the adult worms were not killed and they continued to produce microfilariae. Operative procedures late in the disease, when elephantiasis is present, frequently leave much to be desired and constitute an admission of the failure of early treatment.

Several of the few drugs that have a temporary effect on filarial infections contain antimony. The one on which the present study is based is lithium antimony thiomalate (Anthiomaline). It has the following structural formula:



It is supplied as a 6 per cent solution, 1 cc. containing 60 mg. of lithium antimony thiomalate or 10 mg. of antimony.

de Choisy² treated a patient who exhibited clinical manifestations of a *Loa loa* infection with lithium antimony thiomalate and reported improvement in his condition. Apparently no microfilaria counts were made on the patient's blood during or after treatment. A total of 35 cc. of lithium antimony thiomalate was given intramuscularly to this patient over a period of twenty-three days. Poynton³ injected lithium antimony thiomalate directly into enlarged lymph glands of patients harboring *Wuchereria bancrofti* or *Wuchereria malayi*. The attacks of fever were reported reduced

From the DeLamar Institute of Public Health, Columbia University College of Physicians and Surgeons

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1. Burhans, R. A.; Camp, J. D.; Butt, H. R., and Cragg, R. W.: Lymphangitis of Suspected Filarial Origin, U. S. Nav. M. Bull. 12: 336-340, 1944. Rome, H. P., and Fogel, R. H.: The Psychosomatic Manifestations of Filariasis, J. A. M. A. 123: 944-946 (Dec. 11) 1943.

2. de Choisy, H.: Observation d'un cas de microfilariose loa traite par l'antimonio-thiomalate de lithium, Rev. de med. et d'hyg. trop. 29: 294-296, 1937.

3. Poynton, J. O.: Filariasis, in Annual Report of the Institute for Medical Research of the Federated Malay States, Kuala Lumpur, 1938, pp. 80-85.

in number and intensity in these patients. Chopra and Rao⁴ treated 7 filaria patients with lithium antimony thiomalate. They gave two intramuscular injections weekly, using up to a total of 30 cc. per patient. Only a temporary slight reduction in microfilariae was noted. Hawking⁵ likewise failed to secure a permanent microfilaria reduction in 10 *W. bancrofti* infected patients with lithium antimony thiomalate given intramuscularly. The total dosage employed by him varied from 7 cc. to 25 cc., which was given over a period of from twelve to forty-nine days.

Studies in the past four years by Brown, Brooks and Waletzky⁶ indicate that lithium antimony thiomalate is effective in the treatment of dogs infected with the filarid worm *Dirofilaria immitis*. Although the adult *Dirofilaria* lives free in the right cavity of the dog's heart and *Wuchereria bancrofti* of man lives in the lymphatic system, it was considered worth while to try lithium antimony thiomalate in human infections. Our dog studies suggested that somewhat larger total doses than had been tried by other workers might be needed to be effective in human infections. It is quite conceivable, however, that a drug which reaches sufficient concentrations in dog's blood to kill worms therein may not reach sufficiently high concentrations in the human lymph system to be lethal to worms harbored there.

Lithium antimony thiomalate has been used with some success in the treatment of lymphogranuloma venereum,⁷ trypanosomiasis,⁸ schistosomiasis⁹ and leishmaniasis,¹⁰ and the tolerated dosage has been approximately ascertained and toxicity for man studied.¹¹

Animal toxicity studies have been made by Launoy,¹² Laurens,¹³ Launoy and Lagodsky¹⁴ and myself (unpublished data). Additional toxicologic studies are also in progress in several laboratories.

METHODS

The 12 filaria patients treated during the summer of 1943 with lithium antimony thiomalate were all natives of St. Croix, Virgin Islands. They were

4. Chopra, R. N., and Rao, S. S.: Chemotherapy of Filarial Infection, *Ind. J. Med. Res.* 1939, 1:1.

6. Brown, H. W., Brooks, H. A., and Waletzky, E.: The Treatment of *Dirofilaria immitis* with Anthiomaline, paper read at meeting of American Society of Tropical Medicine, November 1943.

7. Shaffer B.: Anthiomaline A Further Evaluation of Its Effect in Lymphogranuloma Venereum, *Am. J. Syph., Gonorr. & Ven. Dis.* 28: 489-493, 1942. Stammers, F. A. R., and Law, W. A.: Tropical Bubo or Lymphogranuloma Inguinale, *J. Roy. Army Med. Corps* 79: 300-305, 1942. Sezar, A., and Facquet, J.: Traitement de la maladie de Nicolas Favre par un sel d'antimoine trivalent, injectable dans les muscles, *Bull. Soc. franç. de dermat. et syph.* 41: 771-774, 1934.

8. Bertrand, Y.: Essais du mélange anthiomaline moranyl dans le traitement de la trypanosomiose humaine, *Bull. Soc. path. exot.* 31: 522-532, 1938. Rousseau, G.: Quelques essais de traitement de trypanosomoses chroniques par le mélange anthiomaline moranyl, *Ann. Soc. belge de med. trop.* 19: 73-80, 1939.

9. Gobert, E.: Traitement de la bilharziose par l'antimonio-thiomalate de lithium (anthiomaline) a Gfssa, *Bull. Soc. path. exot.* 30: 393-398, 1937. Farges, G.: Essais et résultats de diverses posologies dans le traitement des bilharziozes par l'anthiomaline, *Ann. de med. et de pharm.* colon 35: 196-210, 1937. Moulinsard.¹⁵

10. Villain, G., Marini, C., and Belfort J.: Leishmaniose cutanée, *Tunisie med.* 30: 244-247, 1936. Seneky, H. A.: A Comparison of the Efficiency of Certain Drugs and Dyes in Killing Cultures of *Leishmania Tropica*, *J. Path. & Bact.* 50: 171-176, 1940. Grenier-boly.¹⁷

11. For a review of the literature on lithium antimony thiomalate see "A Summary of Current Literature on Anthiomaline," Office of Medical Information, National Research Council, 1943.

12. Launoy, L.: Action de la cysteine sur la toxicité de l'antimoine, *Compt. rend. Acad. d. sc.* 199: 646-648, 1934.

(Footnotes continued in next column)

already in the hospital for some other cause or were persons found to be microfilaria positive in a survey. Except for 1 patient who had greatly enlarged inguinal and femoral lymph glands and another with enlarged glands and scrotum, the only evidence of filaria infections of the remainder of the patients was microfilariae in the blood and a slight but definite general glandular enlargement with a history of recurrent lymphangitis. The patients were all given a complete physical examination prior to treatment in order to measure any later changes ascribable to the filaria infection or treatment. Blood counts and urine examinations were made before, during and after treatment.

A number of the patients remained in the hospital during the course of treatments, while others came in daily for their injection of lithium antimony thiomalate and continued their usual work and activity.

All injections of lithium antimony thiomalate were given into the gluteal muscles, alternating sides daily unless the patient complained of soreness on one side

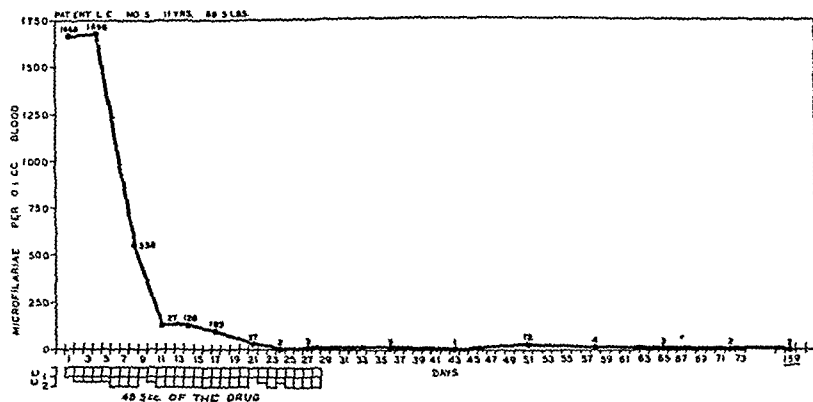


Chart 1.—Effect of intramuscular injections of lithium antimony thiomalate on the microfilaria count

and asked for repeated injections into the other side. Usually a single daily injection was given on consecutive days unless prevented by poor cooperation of the patient or toxic manifestations of the drug. The adult dose of 3 cc. (180 mg.) was used, with adjusted smaller doses for children. On the first day of treatment a half-sized dose was given to ascertain sensitivity of the patients to the drug. In order to keep the drug level as constant as possible with a single daily dose the injections were given at regular twenty-four hour intervals.

The results of the therapy were measured by microfilaria counts on 0.1 cc. of blood after the method of Brown and Sheldon.¹⁵ Since the microfilariae exhibit a nocturnal periodicity, all specimens of blood were drawn from the cubital vein from 10 to 10:30 p. m.

Microfilaria counts on the blood of control persons not treated remained relatively constant during the six months that the treated patients were under observation.

RESULTS

The results of treatment are based almost entirely on microfilaria counts. In assaying the results it is

13. Laurens, M.: Le traitement de la maladie de Nicolas et Favre par l'antimoine III thiomalate de lithium (anthiomaline), Thesis, Paris, 1935.

14. Launoy, L., and Lagodsky, H.: L'hémoglobine et les hématies du sang de lapin au cours de l'injection intraveineuse répétée de deux composés organiques d'antimoine, *Bull. Soc. path. exot.* 31: 68-76, 1938.

15. Brown, H. W., and Sheldon, A. J.: Treatment of Canine Heartworm (*Dirofilaria immitis*) with Fuadin and Sulfanilamide, *J. Am. Vet. M. A.* 98: 477-481, 1941.

evident that a drug used in the treatment of filariasis may kill the microfilariae in the blood stream and not be fatal to the adult worms in the lymph system. In such an event microfilariae would disappear temporarily from the blood stream but again appear in the blood after treatment is discontinued, owing to repro-

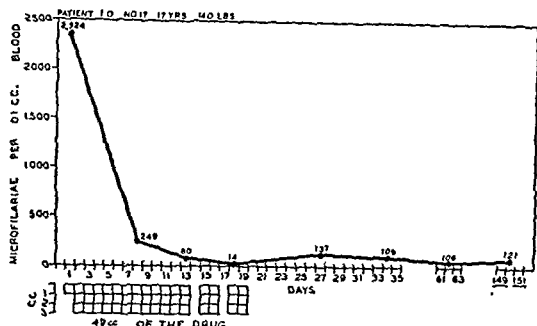


Chart 2.—Effect of intramuscular injections of lithium antimony thiomalate on the microfilaria count.

duction by the adult worms. It is necessary, therefore, to examine the blood for several weeks or months after treatment has ceased to ascertain whether or not the adult worms, as well as the microfilariae, were killed. Microfilaria counts have now been made on the patients treated with lithium antimony thiomalate for from four and one-half to five months after the completion of treatment. Blood smears will also be examined at intervals for the next several months to give additional information of the status of the adult worms as judged by their ability to produce microfilariae.

Table 1 gives the dosage schedules of the various patients and also the microfilaria counts that were made at intervals on each patient.

CASE 1.—A woman aged 23, weighing 118 pounds (53.5 Kg.), exhibited slight general glandular enlargement. She was given 3 cc. of lithium antimony thiomalate on alternate days as suggested by workers using the drug in the treatment of lymphogranuloma venereum. She was given a total of 19.7 cc. (1.18 Gm.). No reduction was obtained in her microfilaria count by the completion of her treatment, but two months after treatment her microfilaria count had fallen from 86 to 47. Five months after the completion of treatment her count was 14. This patient had been delivered of a baby ten days before treatment with lithium antimony thiomalate was instituted. Microfilaria reduction was 89.3 per cent.

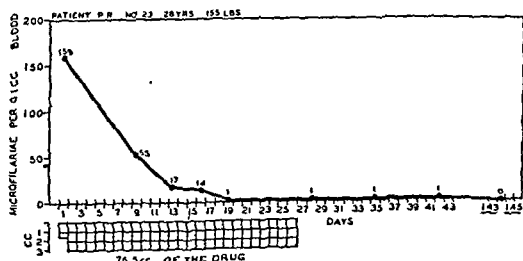


Chart 3.—Effect of intramuscular injections of lithium antimony thiomalate on the microfilaria count.

CASE 3.—A boy aged 14 years, weighing 85½ pounds (39 Kg.), exhibited slight general glandular enlargement. The microfilaria count was 455. He was given 1 cc. of lithium antimony thiomalate on the first day of treatment to test possible sensitivity to the drug. It was planned to give him 2 cc. daily. Approximately fifteen hours after the first injection he complained of pain in the right lower quadrant and experienced some difficulty in breathing. His pulse rate at this time was 128 and respiratory rate was 40 and temperature 100 F. Numerous rales and squeaks could be heard in his

chest. His breathing was eased by 0.5 cc. of epinephrine. His temperature rose to 101.6 F. On the following day the patient was again quite normal. He gave then a history of having what had been diagnosed as asthmatic attacks. Whether or not the attack was precipitated by the injection of lithium antimony thiomalate is unknown. Continued treatment was considered unwarranted at this time, however.

CASE 4.—A man aged 70, weighing 126 pounds (57 Kg.), had had enlarged inguinal lymph glands, the one on the left side the size of a hen's egg, and scrotum about three times normal size, since childhood. A daily dose of 3 cc. (180 mg.) of lithium antimony thiomalate was given (total 43.5 cc.). The pretreatment microfilaria count of 208 continued to drop and was 6 five months after the completion of treatment. The scrotal enlargement and greatly enlarged inguinal and femoral lymph glands did not appear to be affected by the treatment. On the 17th day of treatment the patient's temperature rose to 103 F. and he vomited a small quantity of clear yellow fluid. As the patient was hypertensive, treatment was discontinued. He experienced rises in temperature to 101 and 100 F. respectively on the two following days, with a subsequent return to normal. The microfilaria reduction was 97.1 per cent.

CASE 5.—A boy aged 11 years, weighing 68 pounds (31 Kg.), whose inguinal lymph nodes were slightly enlarged, was given a daily dose of lithium antimony thiomalate 1.5 or 2 cc. to a total of 48.5 cc. (2.91 Gm.). The pretreatment microfilaria

TABLE 1.—Effect of Intramuscular Injection of Lithium Antimony Thiomalate (*Anthiomaline*) on *Wuchereria Bancrofti* Infections

Case No.	Age	Weight, Lbs.	Treatment Period, Days	Total Cc. of Drug	Microfilaria Count, 0.1 Cc. Blood			
					Before Treatment	After Treatment	4-5 Mos. After Treatment	Per Cent Reduction
1	23	118	13	19.7	86	109	14	89.3
4	70	126	17	43.5	208	21	6	97.1
5	11	68	28	48.5	1,660	3	3	99.9
9	19	132	20	55.5	12	42	12	0
10	28	124	12	27	0	0	0	0
17	17	140	19	49	2,324	14	72	96.9
18	16	88	18	35.5	1,100	25	159	85.5
21	11	76	18	32	756	18	0	100
22	21	96	7	15	129	8	1	99.3
23	28	155	26	76.5	159	1	0	100
24	16	110	16	29.5	236	68	23*	86
25	31	125	17	42.5	234	58	34	85.5

* Seven months after treatment.

count of 1,666 fell to 3 by the completion of treatment of twenty-seven injections. Four and one-half months after cessation of treatment the patient's microfilaria count was 3.

This patient had a daily rise of temperature to 99.5-100.2 F. on each of the seven last days of treatment. He vomited on the 8th day of treatment, and no drug was given the following day. Although he occasionally complained of a slight pain in his umbilical region, he did not vomit again although treatment was continued. The microfilaria reduction was 99.9 per cent.

CASE 9.—A youth aged 19, whose weight was 132 pounds (60 Kg.), presented slight general glandular enlargement. He was given a total of 55.5 cc. of lithium antimony thiomalate over a period of twenty days. By the completion of treatment his microfilaria count had risen to 42 from a pretreatment count of 12. Four months after the completion of treatment the microfilaria count was 12. The microfilaria reduction was 0 per cent.

CASE 10.—A man aged 28, weighing 124 pounds (56 Kg.), did not have microfilaria in his blood during the present study although hospital records indicate that they were present in 1941. In 1938 greatly enlarged right inguinal and femoral lymph glands were removed, and in 1941 those on the left side were removed. Lymph glands in these areas soon enlarged again and masses of them approximately 1 by 3 inches were present when treatment with lithium antimony thiomalate was begun. The patient complained that physical exercise resulted in considerable pain in the inguinal region. He was given 27 cc. (1.62 Gm.) of lithium antimony thiomalate over a period of twelve

days, treatment being somewhat irregular the last five days because of gastric distress and vomiting. The patient noted no improvement in inguinal pain on exercise during treatment. Five months later, however, he reported that the inguinal pain on exercise had greatly diminished and in fact had practically disappeared. There was no detectable change in the size of the inguinal and femoral lymph glands at this time.

CASE 17.—A youth aged 17 years, weighing 140 pounds (63.5 Kg.), presented slight glandular enlargement, especially in the inguinal region. This patient had the highest microfilaria count of the group, 2,324 to 0.1 cc. It is estimated that all of the patient's microfilariae if placed end to end would have stretched 11 miles, and their total volume was calculated as 48 cubic inches. He was given 3 cc. of lithium antimony thiomalate daily to a total of 49 cc. (2.94 Gm.). The patient's microfilaria count fell to 14 by the completion of treatment but rose to 137 ten days later. Four and one-half months after the completion of treatment his microfilaria count was 72. The microfilaria reduction was 96.9 per cent.

CASE 18.—A girl aged 16 years, weighing 86 pounds (39 Kg.), showed slight general glandular enlargement, especially noticeable in the epitrochlear regions. She was given a total of 35.5 cc. (2.13 Gm.) of lithium antimony thiomalate over a period of eighteen days. Her pretreatment microfilaria count of 1,100 fell to 25 by the end of treatment. Two weeks later the count had risen to 184, and four and one-half months after treatment it was 159. The patient vomited on the 13th, 15th and 16th days of treatment, so the dosage of the drug was decreased during this period and omitted on one day. The microfilaria reduction was 85.5 per cent.

CASE 21.—A girl aged 11 years, weighing 76 pounds (34.5 Kg.), showed slight general glandular enlargement, especially of the epitrochlear and inguinal lymph glands. She was given 2 cc. of lithium antimony thiomalate daily to a total dose of 32.0 cc. (1.92 Gm.). Her pretreatment microfilaria count dropped from 756 to 18 by the completion of treatment. During the next four and one-half months it gradually fell and became negative at the end of this time—a microfilaria reduction of 100 per cent.

CASE 22.—A woman aged 21, weighing 96 pounds (43.5 Kg.), showed slight general glandular enlargement, especially of the epitrochlear and inguinal lymph nodes. She was given a total of 15 cc. of lithium antimony thiomalate (0.9 Gm.) in seven days. Nine days after the last injection her count had fallen from 129 to 8 and four and one-half months later to 1, a microfilaria reduction of 99.3 per cent.

CASE 23.—A man aged 28, weighing 155 pounds (70 Kg.), showed general glandular enlargement, especially of the epitrochlear and inguinal lymph glands. This patient received the largest total amount of lithium antimony thiomalate, 76.5 cc. (4.59 Gm.) in daily consecutive doses over twenty-six days. He experienced no inconvenience from the treatment. His pretreatment microfilaria count of 159 fell to 1 by the 19th day of treatment. This microfilaria count of 1 persisted for two weeks after completion of treatment but fell to zero five months after treatment, a microfilaria reduction of 100 per cent.

CASE 24.—A boy aged 16 years, weighing 110 pounds (50 Kg.), showed general glandular enlargement. The epitrochlear and inguinal lymph glands were moderately enlarged. He was given a total of 29.5 cc. (1.77 Gm.) of lithium antimony thiomalate over a period of sixteen days. Late in the treatment it was impossible to maintain the daily dose of 2.5 cc. because of persistent vomiting. The patient's preliminary microfilaria count of 236 fell to 42 on the 9th day of treatment. In spite of continued, although irregular, treatment his microfilaria count rose and by two weeks after cessation of treatment was 134. From this point on the count fell to 33 on the 210th post-treatment day.

CASE 25.—A man aged 31, weighing 125 pounds (57 Kg.), showed slight general glandular enlargement, especially noticeable in the epitrochlear and inguinal regions. He was given daily injections of 3 cc. of lithium antimony thiomalate for ten days after the preliminary 1.5 cc. dose. By the end of this eleven day treatment period his microfilaria count had

dropped from 234 to 26. During the subsequent six days, however, treatment was omitted twice and decreased on one day because of vomiting and joint pains in the shoulder and elbow. He was treated therefore over a period of seventeen days, receiving a total of 42.5 cc. (2.55 Gm.). A week after the completion of treatment his microfilaria count had risen to 124. This count fell to 34 during the next four and one-half months, a microfilaria reduction of 85.5 per cent.

TOXICITY OF LITHIUM ANTIMONY THIOMALATE TO PATIENTS

Vomiting.—The most frequent toxic reaction, experienced by 40 per cent of the patients, was vomiting accompanied by epigastric pain. Vomiting occurred only after repeated injections, totaling from 0.780 to 1.89 Gm. of lithium antimony thiomalate. Vomiting occurred most frequently two to three hours after the injection, although it was sometimes delayed ten to twelve hours. In several instances the vomiting ceased although treatment was continued; usually, however, once vomiting began it continued as long as the full dose of the drug was continued. Pain in the epigastric region was complained of by the patients both before and after vomiting, and pain on pressure was noted in this area. To stop the vomiting the dose of the drug was reduced or treatment omitted entirely for one day. Ashkar¹⁶ and others have likewise reported vomiting after a total of 1.20 Gm. or more had been reached. Gobert⁹ suggests a two hour rest after antimony treatment to reduce vomiting. In the series reported here, however, vomiting occurred among those patients who were hospitalized as well as those who were treated in the outpatient department.

Local Reaction at the Site of Injection.—Gluteal reaction at the site of injection of lithium antimony thiomalate varied greatly from patient to patient. The majority of them experienced no inconvenience. Occasionally a patient would complain of soreness and ask for the next several injections to be given in the opposite side. One woman taking her injections in the outpatient department stopped treatment after seven injections totaling 0.9 Gm. of the drug, complaining of sore buttocks. Examination failed to reveal evidence of inflammation sufficient to warrant discontinuing treatment. Sites of former drug injections frequently could be palpated as firm intramuscular painless masses. There was no evidence of severe inflammation or abscess formation, and in general the reaction at the site of injection was of little moment. Grenierboley¹⁷ and Moulinard¹⁸ stress the local and general tolerance to intramuscular injections of lithium antimony thiomalate, while Chopra and Rao⁴ report that it caused severe reaction with pain and swelling at the site of injection. The latter were using doses up to 5 cc., which may explain the severe reactions. The maximum dose used in the series reported here was 3 cc.

Fever.—Two patients experienced fever near the end of their series of treatment. One patient's temperature rose suddenly to 103 F. after 2.61 Gm. of lithium antimony thiomalate and fell to normal over a period of three days when the drug was discontinued. The other patient had a low grade fever of 99.5 to 100.2 F. during the last seven days of treatment. Sézary and

16. Ashkar, M. F.: Treatment of Schistosomiasis with Anthiomaline (a Preliminary Report), *J. Egyptian M. A.* 21: 614-619, 1938.

17. Grenierboley, J.: Sur le traitement de la maladie de Nicolas et Favre par le thiomalate de lithium, *Bull. Soc. méd.-chir. de Paris*, 1938.

18. Moulinard, J.: La maladie de Nicolas et Favre traitée par l'anthiomaline; résultats comparés à ceux obtenus avec l'émétine et l'émétique, *Ann. de méd. et de pharm. colon.* 3-4: 352-371, 1936.

Bolger¹⁹ and others have likewise noted fever, usually during the last days of a series of injections.

Arthritis.—Although other workers²⁰ report localized pains of arthritic character as the most frequent toxic reaction of lithium antimony thiomalate therapy, it was experienced by only 1 of the patients in this series. After 1.71 Gm. of drug 1 patient (25), weighing 125 pounds (57 Kg.), noticed pain in his right shoulder area. Treatment was continued, and on the following day pain was noted also in his left shoulder. As the treatment continued the pain extended down the flexor surfaces of his arms to his elbows and became so severe that he moved his arms only with great pain. Treatment was suspended for a day with decided improvement of his arms and shoulder. The pain seemed to be localized in the joints, in the tendinous insertions and even in the muscles. The areas of the joint were very sensitive to pressure. There was no alteration in reflexes or edema.

Urine.—Intravenous phenolsulfonphthalein tests were done on the patients to ascertain kidney function before treatment. Only 1 patient (25) exhibited an

TABLE 2.—Blood Picture Before and After Treatment with Lithium Antimony Thiomalate

Patient	Red Blood Cells	Hemoglobin	White Blood Cells
Before Treatment			
4.....	2,880,000	62%	9,000
5.....	3,500,000	76%	7,600
18.....	3,480,000	68%	7,300
21.....	3,410,000	70%	6,600
Four Weeks After Treatment			
4.....	2,900,000	65%	8,900
5.....	3,650,000	70%	8,400
18.....	3,000,000	68%	8,800
21.....	2,410,000	60%	6,200
Four to Five Months After Treatment			
4.....	3,400,000	70%	6,600
5.....	3,630,000	72%	9,200
18.....	2,980,000	65%	8,400
21.....	3,420,000	70%	7,000

excretion rate below the so-called normal. This patient's fifteen minute excretion was 8 per cent and one hour excretion 30 per cent. The patient tolerated the early portion of the treatment very well, but late in the treatment series he experienced the only arthritic disturbance encountered and also vomited.

Examinations of the various patients' urine (sugar, albumin, reaction, casts and blood cells) were made at intervals during treatment and there was no evidence of renal damage. Patient 5 had a trace of albumin in the urine before starting treatment. A trace of albumin was found in the urine on the 10th day of treatment after a total of 24.5 cc. of lithium antimony thiomalate had been administered. The urine was free from albumin thereafter. Patient 23 showed a trace of albumin in the urine after 37.5 cc. of lithium antimony thiomalate, but another specimen examined six hours later was albumin free. On the 20th day of treatment after 58.5 cc. of the drug he also had a trace of albumin in the urine.

Rashes.—Six of 12 patients experienced transitory itching rashes after a number of injections of the drug. In 3 instances the rash was on the lateral aspects of

the fingers and thumbs and consisted of small raised papules 1 to 2 mm. in diameter. One patient had a similar rash on his face, especially his forehead, as well as his hands. Another patient had a punctate red rash on the chest and the flexor surfaces of his arms, and 1 patient had a similar rash on his chest and abdomen only. The rashes were not severe and usually remained static or disappeared even though treatment was continued. There is some question as to the exact etiology of the rashes and the relation of the lithium antimony thiomalate to them.

Blood.—Sézary and Bolger¹⁹ believe that prolonged administration of lithium antimony thiomalate seemed to cause a certain degree of anemia. On the other hand, Ashkar¹⁶ observed no change in the blood picture "except for the eosinophilia that usually occurs with the other antimony compounds." Brooks²¹ using dogs, followed the blood picture after an intravenous injection of 4 cc. of anthiomaline with the following results:

In both dogs used for this study there was a decrease of more than 50 per cent in the total white blood cell count within fifteen minutes after the drug was administered. Following this there was a rapid rise to 17,000 in 1 dog and 19,000 in the other. This maximum degree of leukocytosis was reached in approximately twelve hours in both cases. Over a period of ninety-six hours the total counts gradually decreased again to what was considered normal for these individual dogs. The red blood cell counts showed a brief rise following the injection of anthiomaline, after which there was a gradual decrease up to twenty hours. By the end of ninety-six hours the counts were again normal.

Launoy and Lagodsky,¹⁴ using lithium antimony thiomalate in rabbits intravenously, conclude that four to five injections over twenty-four to thirty-five days produced only a slight transient anemia.

The blood of 4 patients in the series reported here was examined before treatment and four weeks and four to five months after treatment (table 2). The red blood cell count of patient 18 was approximately 500,000 cells lower four weeks and four months after treatment, although her hemoglobin remained unchanged. Patient 21 had a drop of approximately 1,000,000 red cells four weeks after treatment but returned to the pretreatment level by four months after treatment. The variations in white blood cell counts were probably all within normal limits.

It has been suggested by O'Connor²² that the pathologic changes in filaria infected persons result from the host reaction to the dead adult worms. The results of any therapy that has as its purpose the killing of the adult worms and microfilariae should therefore be followed for a considerable period to ascertain the patient's reaction to the death of both the adult worms if this occurs and the death of the microfilariae if their decrease in number is due to lethal action of the drug rather than to a normal rate of death which is not followed by normal reproduction by adults. It is planned to follow the patients treated with lithium antimony thiomalate for several years to ascertain whether or not the death of their parasites affected them adversely.

Four and one-half to five months after the completion of treatment the patients were given a physical reexamination, and a medical history was taken of this period. None of the patients gave any evidence of a reaction attributable to death of either adult worms

19. Sézary, A., and Bolger, M.: La posologie de l'anthiomaline, Bull. et mém. Soc. méd. d. hôp. de Paris 51: 555-559, 1935.

20. Sézary, A.; Bolger, M., and Joseph, R.: Le traitement de la maladie de Nicolas-Favre par l'anthiomaline (antimoine trivalent), Bull. Soc. franç. de dermat. et syph. 42: 637-641, 1935. Sézary and Bolger.¹⁹

21. Brooks, T. J., Jr.: The Treatment of Canine Filariasis with Anthiomaline, Thesis, University of North Carolina, 1942.

22. O'Connor, F. W.: The Etiology of the Disease Syndrome in Wuchereria Bancrofti Infections, Tr. Roy. Soc. Trop. Med. & Hyg. 26: 13-47, 1932.

or microfilariae. There were no changes in the size of their glands and no evidence of inflammation or edema. Likewise none of the patients gave a history of inflammation, enlargement of glands or edema during the four to five months following treatment. If it is true that dead worms cause the pathologic changes, the large numbers of microfilariae (23,240 per cubic centimeter in patient 17) and adult worms should in time result in inflammatory reactions. On the other hand, tremendous numbers of microfilariae must die every day and be taken care of by the host in the average untreated case of filariasis, for if the length of life of a microfilaria is sixty to seventy days,²³ then one sixtieth to one seventieth must die each day and be replaced. Patient 17 had an estimated 100,000,000 microfilariae in his blood stream; hence approximately 1½ million would die each day. This continued destruction of microfilariae by the host may partially desensitize him to the foreign protein of the worms.

The patient's blood will also be followed at intervals for several years after treatment. If their blood stream remains free from microfilariae for months it is strong evidence that the adult worms are dead and were killed by the lithium antimony thiomalate. On the other hand, if microfilariae begin to appear twelve to fifteen months after treatment it is possible that reinfection has taken place since treatment, for this is approximately the length of time for a new infection to produce microfilariae.

COMMENT

The results of treatment with lithium antimony thiomalate of *Wuchereria bancrofti* infected persons strongly suggests that the drug is lethal not only to the microfilariae but also to the adult worms as well and that from 85 to 100 per cent of the worms are killed by one series of the drug. It is possible, of course, that the microfilariae circulating in the blood are more delicate than the adults and are more readily killed. Likewise a higher concentration of the drug may reach the microfilariae in the blood stream than reaches the adults in the lymphatics. Experience indicates that a drug may kill the microfilariae and temporarily sterilize the adult female so that the production of microfilariae is temporarily inhibited. It is essential, therefore, that the patient's blood be repeatedly examined for microfilariae over a considerable period after the completion of the treatment. The patients treated with lithium antimony thiomalate have been examined for microfilariae for from four and one-half to five months after the completion of treatment to determine the effect of the drug on the adult worms. It is considered unlikely that the adult worms that were injured to the extent that they did not produce microfilariae after four and one-half to five months are still alive.

Treatment with lithium antimony thiomalate usually resulted in decided reduction in microfilaria counts after a total of 15 to 20 cc. of the drug. Although treatment was continued there was an additional though slower reduction in microfilaria count. This suggests that the microfilariae may vary in susceptibility to lithium antimony thiomalate and that the resistant ones were killed only after a longer exposure to the drug. It may also mean that the adult worms differ in the rapidity with which they were killed owing either to individual variation in resistance or to their localization

in the host. The initial sudden drop in microfilariae then may have been due to their elimination from the blood stream by the direct action of the drug. The adults, presumably more resistant to the effects of the drug and more slowly killed, continued to supply the blood stream with fewer and fewer microfilariae.

The continued persistence of microfilariae in the blood four to five months after treatment suggests that adult worms are still present, possibly protected in a fibrosed lymph gland from lethal concentrations of the drug. Our present knowledge indicates that microfilariae persist in the blood approximately ten weeks. It is doubtful, therefore, if the continued persistence of microfilariae could have been possible for five months without the presence of the adults.

The daily dosage of lithium antimony thiomalate per kilogram weight of the patient varied from 0.00155 Gm. to 0.00313 Gm. Likewise the total drug administered varied from 0.0217 Gm. to 0.0831 Gm. per kilogram weight of patient. It is impossible, however, in such a small series to correlate the drug dosage with effectiveness of treatment. It is known from the work of Chopra that there is great individual variation in the excretion rate of antimony by man. Hence given the same dosage, patients may vary in the actual antimony blood levels attained. Until a satisfactory method for the determination of antimony blood levels is available, the size and rate of lithium antimony thiomalate injections will be more or less empirical. Presumably the best therapeutic regimen would be one that maintained a high blood and tissue antimony concentration. This is predicated on the basis that antimony is the active element of the drug. On the other hand, there may be considerable variation in therapeutic effect between cases even though the blood antimony is the same, for there may be a decided difference in the location of the adult worms and the penetrability of their environment by the drug.

The lack of severe acute and chronic toxicity of lithium antimony thiomalate for man suggests, at least from present data, that continued carefully supervised therapeutic trial of this drug in filariasis is warranted.

It is recognized that lithium antimony thiomalate is not the ideal drug for the treatment of filariasis, as it does not kill all of the worms of all the patients and because of its toxicity for man. On the other hand, it may be possible to improve on its effectiveness by adjusting the size of doses and by giving several series of treatments. This problem is under study. On the other hand, if lithium antimony thiomalate is not used, no other therapeutic agent is available that offers any promise of cure.

The treatment of filariasis after the patient becomes microfilaria positive may be analogous to the treatment of syphilis after the patient exhibits a positive serologic reaction. In syphilis it is much more satisfactory to start treatment earlier on the basis of a positive dark field examination. Likewise in filariasis during the year or two between infection and becoming microfilaria positive the host reaction about the worm and growth of the worm may make it much more difficult to eliminate the infection. It might be highly advantageous therefore to treat a filaria infection as early as a diagnosis can be made. A clinical²⁴ and serologic²⁵ diagno-

23. Rao, S. S.: Filariasis Enquiry, in Report of the Scientific Advisory Board of the Indian Research Fund Association, 1933-1934, p. 85.

24. Buxton, P. A., and Hopkins, G. H. E.: Researches in Polynesia and Melanesia, Memoir Series no. 2, London, London School of Hygiene and Tropical Medicine, 1927. Dickson, J. G.; Huntington, R. W., Jr., and Eichold, S.: Filariasis in Defense Force, Samoan Group, U. S. Nav. M. Bull. 41: 1240-1251, 1943. Fairley, N. H. 25. Fairley, N. H.: Skin Test and Complement Fixation Reactions in Filariasis, Tr. Roy. Soc. Trop. Med. & Hyg. 25: 220, 1931.

sis of filariasis sometimes may be made within three to five months after infection, i. e. one to two years before microfilariae appear in the blood, and it is suggested that a cure of these early cases may be successful; as the worm is immature, smaller and presumably not as robust as the full grown adult. Likewise tissue reactions about the young worm may be at a minimum and permit access of the drug to them in higher concentrations. A group of these early clinical cases that are microfilaria negative are now under treatment and will be reported later.

SUMMARY

1. Lithium antimony thiomalate, a compound given intramuscularly to a series of filaria infected patients, reduced their microfilaria count 85 to 100 per cent. This reduction was maintained for four to five months after the completion of treatment and means presumably that a corresponding number of the adult worms were killed. One patient failed to respond to treatment, and there was no reduction in his microfilaria count.
2. No reduction in size of enlarged lymph glands or one enlarged scrotum could be detected four to five months after the completion of treatment. One patient noted a pronounced improvement in his inguinal distress on exercise following treatment.
3. The patients' history and physical examination failed to reveal any pathologic changes due to the death of the adult worms or microfilariae.
4. The toxic manifestations due to lithium antimony thiomalate of vomiting, joint pain, slight fever and rash are not considered sufficient to preclude its continued trial in filariasis.

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COMPLICATIONS FOLLOWING ARTERIOGRAPHY OF PERIPHERAL VESSELS

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PHILADELPHIA

Arteriography of nearly all the main arteries of the body, including the carotid, pulmonary and abdominal aorta, has been successfully performed. The latter vessels require special technics, but the procedure for those of the extremities, though exacting, is fairly simple. The study permits accurate visualization of the direction of the course of the arteries, the width of the lumen and the shape of the inner wall. Thus arteriography demonstrates the degree and level of arterial obstruction in the severe tissue nutritional disturbances of arteriosclerotic occlusion, embolism, Buerger's disease and large vessel trauma; the amount of collateral circulation; the site of arteriovenous aneurysms, and in simple arterial aneurysm the position of the sac and its patency or obstruction by thrombosis. It has therefore been employed in these conditions when in spite of the clinical observations, aided by oscillometry, skin surface temperature readings, histamine wheal tests and so on, finer delineation of the pathologic changes is desired because of the continued progress of the disease. Furthermore, as stressed by Inclan¹ and reenphasized by Shallow,² arteriography should be

performed in preference to specimen and-punch biopsy in the early diagnosis of bone tumors, since the latter procedure in the case of malignant lesions may spread the disease into the very rich venous circulation. In addition; by arteriography one can determine the exact limits of the bone lesion, distinguish the benign and inflammatory from the malignant, and denote the stage of the malignant growth.

Although arteriography is not universally practiced at present, the growing importance of this study in the more accurate diagnosis of arterial lesions and the earlier diagnosis of bone cancer encourages its more widespread employment. At the same time the procedure is not without danger, and for this reason the report of an untoward reaction is cited and in addition the various complications both local and systemic following peripheral arteriography are discussed:

REPORT OF CASE

History.—D. L., a Negro girl aged 14 months, was admitted to the Jefferson Medical College Hospital on Nov. 18, 1942 because of swellings just below the right elbow, over the lower third of the right thigh and on the left forehead, first noted several days after birth.

The swelling of the elbow gradually increased, and about two weeks prior to admission the infant developed fever. At that time the swelling was incised and drained in the accident ward and about an ounce of pus (positive for *Staphylococcus aureus*) obtained. The wound did not heal well, and the infant was admitted to the hospital.

Except for the recent acute episode, the infant's general health had been good and growth was normal.

The mother had died two months previously from tuberculosis.

Physical Examination.—The infant was well developed and weighed 18 pounds 4 ounces (8,278 Gm.). The temperature was 102 F., the pulse rate 150 and the respiratory rate 54. At the upper end of the right ulna was a tender, indurated area, 4 cm. in diameter, from which



Fig. 1.—Arteriogram in case of tuberculous osteomyelitis of proximal end of right ulna in an infant aged 14 months.

there was slight drainage through a small recent incision. In addition there was a firm, round, fixed, nontender, semispherical mass 2 cm. in diameter on the left forehead as well as a similar mass 3 cm. in diameter on the anterior aspect of the lower third of the right thigh.

Laboratory Studies.—Hemoglobin was 61 per cent, red cells numbered 3,700,000 and white cells 22,800, with neutrophils 65 per cent (15 per cent young forms), lymphocytes 22 per cent and monocytes 13 per cent. Urinalysis revealed slight albuminuria. The blood Wassermann and Kahn reactions were negative. Repeated smears and cultures of pus from the elbow lesion were positive for *Staphylococcus aureus* but negative for acid fast bacilli. The tuberculin test was strongly positive following the first test dose.

X-ray examination revealed an expansile lesion somewhat cystic in nature, with numerous layers of periosteal new bone formation, involving the upper third of the right ulna, interpreted as either low grade osteomyelitis or a Ewing's tumor. The remainder of the skeleton was normal. The chest films revealed a widening of the superior mediastinum with densities

From the Samuel D. Gross Surgical Division of the Jefferson Medical College Hospital.

1. Inclan, A.: The Possibilities of the Roentgenographic Study of the Arterial Circulation in the Early Diagnosis of Bone Malignancy, *J. Bone & Joint Surg.* 24: 259, 1942.

2. Shallow, T. A.; Raker, N., and Fry, K.: Primary Malignant Tumors of Bone with Special Reference to Osteogenic Sarcoma, *J. Internat. Coll. Surgeons* 6: 89, 1943.

extending into both lung fields and displacement of the trachea to the right. The lung fields were otherwise clear, and the heart appeared normal.

Since by clinical and x-ray examination it was impossible with certainty to distinguish between a purely inflammatory lesion and a neoplastic one, and since it was desirable to avoid a biopsy, an arteriography was performed on Feb. 27, 1943 under open drop ether anesthesia. The brachial artery was exposed surgically at the lower third of the arm and 7 cc. of neo-iopax injected following temporary occlusion just above the site of the puncture. The films obtained (fig 1) showed an increase in the number of vessels around the upper end of the ulna, with dilatation and a fuzzy outline. Contrast material was seen in the large spaces within the bone structure. These findings were interpreted as representative of a low grade osteomyelitis of either a pyogenic or tuberculous origin.

About three minutes after the injection it was noted that the extremity was colder than the corresponding opposite member.

During the next six months the arm was immobilized in a cast. The ulcers (fig. 2c) as well as the bone lesion gradually healed during this time, and complete function of the extremity returned. Figure 2d shows the appearance of the forearm and hand eight months after injection, at which time there was still absence of the radial pulse.

The nodule of the forehead was excised on April 28 and reported by the pathologist to be a tuberculous lesion. The lesion on the thigh disappeared over a period of several months, and the patient was discharged on September 7. On November 28 she was readmitted with severe gastroenteritis and died of disseminated tuberculosis on December 12. Permission for autopsy was unobtainable.

COMMENT

It seems likely that the complication in this case began with vasoconstriction resulting from the irritating effect of the contrast material. In view of the persistent absence of the radial pulse, the vasomotor

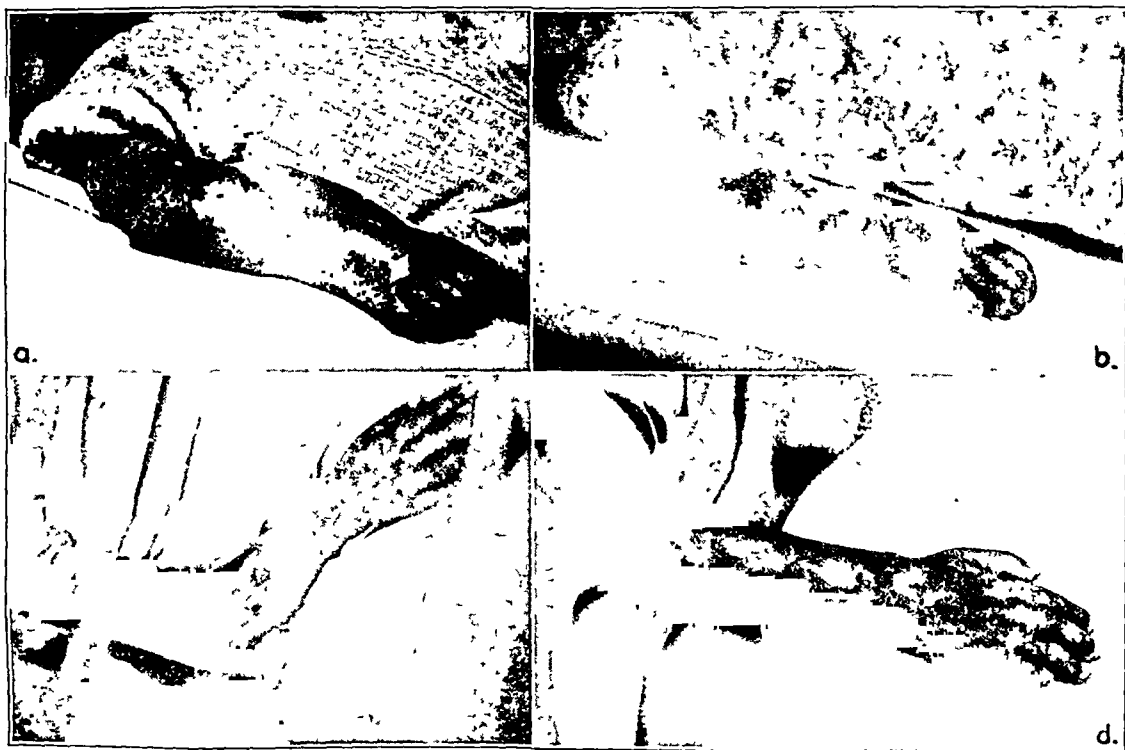


Fig 2—Appearance of forearm and hand following arteriography complicated by arteriospasm and thrombosis (a) Temporary Volkmann's contracture forty eight hours later, (b) ulceration of skin with edema subsiding five days after injection, (c) ulcers almost healed six months later; (d) complete healing eight months after injection. Radial pulse still absent.

The radial pulse, which previously had been of good quality, disappeared, and cyanosis of the finger tips was noted. The infant was returned to the ward and treatment begun immediately, consisting of elevation of the extremity, warm compresses, and papaverine for antispasmodic effect. Within forty-eight hours the forearm and hand became considerably swollen and diffusely tender. The fingers were partially flexed, and there were no spontaneous movements of the fingers or hand. Numerous ecchymotic areas varying in size from several millimeters to 2 cm. in diameter appeared on the fingers, dorsum of the hand and forearm. At this time the appearance of the arm resembled that seen in ischemic paralysis or Volkmann's contracture (fig. 2a). Some of the ecchymotic areas resorbed, while blisters filled with serosanguineous fluid appeared over the others and subsequently broke down, forming superficial punched-out ulcers (fig. 2b). At this time, five days after injection, the edema began to subside, and feeble attempts at spontaneous movements of the fingers were noted. The temperature, which before arteriography had ranged between normal and 102 F, continued at 103-104 F. for six days following injection and then gradually subsided.

reaction must have been followed by thrombosis of the brachial artery, but collateral circulation was sufficient to prevent gangrene.

Complications both local and systemic following arteriography are most prone to occur at the two extremes of life, because in infancy and childhood the vessels are particularly susceptible to spasm, those of the upper extremity more so than the lower, and since in old age the incidence of arteriosclerotic occlusion is increased, with collateral circulation poor. In the etiology both mechanical and chemical factors play a role. Trauma to the artery as a result of puncture by the needle and the force of injection by arterial distention may in themselves provoke reflex vasoconstriction. The ideal contrast solution should be nontoxic, nonirritating, isotonic with the concentration of the blood and excreted promptly, but these criteria have not been completely satisfied by either thorotrast or the organic iodine compounds.

LOCAL REACTIONS

Hematomas.—A hematoma may follow the arterial puncture and in some cases an inadvertent venipuncture when the percutaneous route is used. It usually resorbs promptly following moist applications and external heat. Demel³ states that in arteriosclerosis in 1 out of 300 cases there may be bleeding from the artery, readily controlled with a suture through the adventitia. Dos Santos,⁴ among 1,500 arterial punctures, had only 1 case of persistent bleeding, necessitating ligation of an atheromatous femoral artery, and the patient recovered without gangrene.

Extravasations.—Displacement of the needle before or during injection may occur, with infiltration of the adventitia or periarterial tissue with contrast material. In 411 arteriographies with use of thorotrast dos Santos⁴ had only 8 extravasations (less than 2 per cent). Dimtza and Jaeger⁵ among 70 percutaneous arterial injections had 6 extravasations, but they were not followed by serious consequences except nausea and fever. The material may accumulate locally around the vessel and eventually produce an inflammatory reaction. Moist applications and external heat encourage resorption, which is usually slow and accompanied by induration and fibrosis but no permanent untoward effects. Less frequently the inflammatory reaction may proceed to actual suppuration, in which instance incision and drainage of a fluctuant mass may be required. Occasionally the contrast material may extravasate along the course of the vessel in linear fashion (cases of Garraud,⁶ dos Santos⁴ and Desplas and Reboul⁷). These cases usually respond well to the conservative measures already mentioned. Thorotrast may diffuse by way of the lymphatics and slowly form a mass some distance from the original site of injection. Thus, dos Santos⁴ reports the development of a suppurative mass in the iliac fossa two years after femoral arteriography with thorotrast complicated by extravasation of the contrast material.

Severe Vasomotor Reactions.—Among the serious complications are severe immediate vasospastic reactions in the injected limb. In almost all instances, as in the present case report, these have followed the use of organic iodine compounds rather than thorotrast. Dos Santos⁴ in 129 arteriographies with organic iodine compounds had 6 cases in which gangrene was aggravated, in contrast to no vasomotor reactions in more than 300 with thorotrast. The reaction is first manifested by severe pain in the limb and blanching followed by venous stasis. After several hours there appear scattered violet plaques, some of which may become confluent, in the skin distal to the point of injection, due to cutaneous and subcutaneous hemorrhages. Later they may appear proximal to the point of injection, as in a case of Lambret⁸ and 1 of Leclerc⁹ in which plaques appeared in the skin of the lower abdominal wall following femoral arteriography. Motor paralysis may occur, skin and tendon reflexes may be abolished

and anesthesia may be present distal to the zone of injection. The pain usually subsides in two or three days. The cyanotic plaques slowly resorb, progressively passing through the various colors of a hematoma, and blisters may appear over some of them. Movement and sensitivity gradually return, and in a week to ten days the limb may become normal. In other cases a preexisting gangrene may be aggravated.

In a few instances the puncture site has been surgically explored. The muscles are engorged with dark blood which flows readily from the veins, but blood does not spurt from the arteries. On exposing the area of the puncture, there is no hematoma and the orifice of the puncture is not identifiable. According to Leveuf,¹⁰ the artery does not pulsate and aspiration with a needle fails to obtain blood. On opening the artery a soft clot is found which does not prevent passage of the needle into the lumen of the vessel. Histologically the skin epithelium is intact. The capillaries of the subcutaneous tissue are dilated and congested, and there is an infiltration of leukocytes, chiefly eosinophils. There is no lesion of the arterial wall in the vicinity of the site of the puncture, and the orifice cannot be found. The arterial lumen often contains a recent thrombus undergoing rapid organization (Leveuf;¹⁰ Sèneque and Benoit¹¹).

The occurrence of these severe local reactions may be reduced by a more careful selection of cases for arteriography, the employment of a painstaking technic of puncture and injection, and the proper choice of contrast material. Thus, in young children, in patients with preexisting vasospastic arterial disease or in cases of organic occlusion with poor collateral circulation the risk of superadded vasospasm must be avoided, and therefore the use of the organic iodine compounds for these patients is contraindicated. The use of thorotrast, although relatively safer for these types of cases, is not without danger, since Lambret⁸ has reported a case of aggravation of gangrene following the injection of this substance, with death nine days later. Definite treatment of the complication, once it has occurred, consists in the use of antispasmodic and vasodilator drugs and the mechanical measures commonly employed against the ischemia of peripheral vascular disease, such as Buerger's exercises, oscillating bed and intermittent venous occlusion apparatus. In some instances the development or aggravation of gangrene may require amputation (case of Leveuf¹⁰).

SYSTEMIC REACTIONS

Severe systemic reactions may occur following arteriography both with thorotrast and with the organic iodine compounds. Thus, dos Santos⁴ has reported a case in which following the use of thorotrast there occurred hematemeses and a pronounced anemia with decreased coagulability of the blood but with recovery following transfusions. Arteriography was performed with thorotrast in the case of an infant because of a Volkmann's contracture, and death occurred the same evening following several arrests of respiration (Wertheimer and Friehe¹²). Some reports have emphasized the tendency of thorotrast to produce necrosis and neoplastic changes in tissues in which it is contained, particularly the cells of the reticuloendothelial system

3. Demel, R.: Diagnostic and Therapeutic Importance of Arteriography, *Indian M. Rec.* 58: 197, 1938.

4. dos Santos, R.: Sur l'artériographie, *Bull. et mém. Soc. nat. de chir.* 61: 585, 1935.

5. Dimtza, A., and Jaeger, W.: Ueber die Indikation der Arteriographie, *Fortschr. a. d. Geb. d. Röntgenstrahlen* 58: 40, 1938. Zur Arteriographie der Extremitäten, *Arch. f. klin. Chir.* 196: 631, 1939.

6. Garraud, R.: Les accidents de l'artério-contrastographie (étude clinique), *Paris méd.* 2: 114, 1937.

7. Desplas, B., and Reboul, H.: Accidents de l'artériographie, *Bull. et mém. Soc. nat. de chir.* 61: 10, 1935.

8. Lambret, O.: Accidents de l'artériographie, *Bull. et mém. Soc. nat. de chir.* 61: 173, 1935.

9. Leclerc, G.: Accidents de l'artériographie, *Bull. et mém. Soc. nat. de chir.* 61: 180, 1935.

10. Leveuf, J.: Les dangers de l'artériographie, *Bull. et mém. Soc. nat. de chir.* 61: 6, 1935.

11. Sèneque, J., and Benoit: Sur les accidents de l'artériographie, *Bull. et mém. Soc. nat. de chir.* 61: 16, 1935.

12. Wertheimer, P., and Friehe, P.: A propos de 77 artériographies, *Bull. et mém. Soc. nat. de chir.* 61: 361, 1935.

in the liver and spleen, in which its radioactivity may be maintained for ten to fifteen years; but just how much damage may result in human beings has not been established, and to date no effects of this nature have been described following the small doses used for arteriography of the peripheral vessels.

Systemic reactions following the injection of organic iodine compounds consist of flushing of the skin with a feeling of warmth, erythematous eruptions, nausea, vomiting, cyanosis, respiratory distress and fall in blood pressure. These reactions usually subside within a few minutes to an hour, but the skin eruptions may persist for several days. Death may occur as an immediate reaction as the result of hypersensitivity or idiosyncrasy to the injected material, or else delayed, in which instance it is thought to be due mainly to preexisting extensive renal damage. Pendergrass and his co-workers¹³ conducted a survey of deaths following the administration of organic iodine compounds as contrast mediums in 661,800 examinations, mostly urographic, and collected, in addition to the 11 previously reported cases, 26, representing an incidence of 0.0039 per cent. The latter figure, although not strictly representative for arteriography, gives some idea of the risk of fatality associated with the injection of these substances into the blood stream.

A decrease in the number of fatalities can be achieved by a strict adherence to the contraindications for use of the various contrast mediums and by prompt treatment when systemic reactions unexpectedly occur. In New and Nonofficial Remedies for 1943¹⁴ the contraindications listed for contrast mediums are severe liver disorders, nephritis and uremia. It is further advised in this issue that they be employed with caution in pulmonary tuberculosis and hyperthyroidism. Because of the reported fatalities due to hypersensitivity, it is essential that a careful allergy history be taken as well as the performance of one of the standard sensitivity tests for the contrast material such as the patch, intradermal, conjunctival, mouth or intravenous test. Patients with suspected kidney disease should have renal function tests performed and arteriography withheld on those with significant impairment. As it is now well known that even these precautions and tests do not warn adequately in all cases against sensitivity and toxic reactions, it is important to have facilities available for the immediate intravenous administration of epinephrine (1:1,000), caffeine and sodium benzoate, nikethamide or calcium gluconate.

CONCLUSIONS

Arteriography of the peripheral vessels is of value in the accurate diagnosis of arterial lesions and the early diagnosis of bone cancer but is not without danger.

The risk of complications does not warrant the abandonment of arteriography as a diagnostic aid but rather should keep one alert to minimize the danger by a proper selection of cases, careful choice of contrast material associated with the taking of an allergy history and the performance of a standard sensitivity test, painstaking technic and preparedness for prompt treatment if the necessity arises.

13. Pendergrass, E. P.; Chamberlin, G. W., Godfrey, E. W., and Hurdick, E. D.: A Survey of Deaths and Unfavorable Sequelae Following the Administration of Contrast Media, *Am. J. Roentgenol.* 48: 741, 1942.

14. New and Nonofficial Remedies, Issued Under the Direction and Supervision of the Council on Pharmacy and Chemistry, Chicago, American Medical Association Press, 1943, p. 331.

STUDIES ON HUMAN SCHISTOSOMA MANSONI INFECTIONS

I. PROCTOSCOPIC PICTURE IN ASYMPTOMATIC SCHISTOSOMIASIS MANSONI INFECTIONS

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AND

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MEDICAL CORPS, ARMY OF THE UNITED STATES

In the physical processing of Puerto Rican male inductees for Selective Service, a routine stool examination has been required by the Antilles Department. As a result of this type of examination, approximately 10 per cent¹ of otherwise healthy males were found positive for the ova of *Schistosoma mansoni*. A report of the Survey by Antilles Department Laboratory will appear shortly as part of this series of studies. In the light of this fact it was decided to carry on a proctologic study of a group of ova positive applicants, in an effort to ascertain what pathologic changes, if any, were demonstrable in the rectal mucosa of the hosts.

Proctoscopic Observations

	Number	Per Cent
Normal mucosa	61	39.3
Normal mucosa with ulceration.....	75	48.5
Normal mucosa with polyps....	2	1.3
Normal mucosa with hemorrhagic areas	13	8.3
Atrophic mucosa	2	1.3
Inflammation	2	1.3

The finding of changes in the rectal mucosa in 60.7 per cent of the 155 persons examined is in keeping with our understanding of the pathologic changes which take place in this infection and with our present knowledge of the life history of the infecting parasite.

METHODS AND RESULTS

These young men were hospitalized in the gastrointestinal ward, given a low tepid water enema and then examined proctoscopically. External and digital examinations were entirely negative and failed to reveal any evidence of hemorrhoids, eversion of the rectum, tumor masses or other pathologic changes. The proctoscope was passed under direct vision up to the rectosigmoid fold in all patients and for 4 cm. to 5 cm. within the sigmoid colon in about one half of the patients.

The mucosa was entirely normal in 61 persons, or 39.3 per cent of the examinations. In 94 persons (60.7 per cent) proctoscopy revealed ulcerations which have been found to be characteristic of infections with *S. mansoni*.

This is the first of a series of studies carried on by members of the Medical Corps, Antilles Department.

Lieutenant Colonel Bercoitz was formerly assistant clinical professor of medicine, New York Post Graduate Medical School, Columbia University, New York, on leave of absence.

Captain Rodriguez-Molina was formerly associate professor of tropical medicine, Puerto Rico School of Tropical Medicine, San Juan, Puerto Rico, on leave of absence.

This study was made at the suggestion of Col. Clyde C. Johnston, Department Surgeon, Antilles Department.

1. Dammin, G. J. and Weller, T. H. Personal communication to the authors.

The ulcerations were single pin point, located just below the rectosigmoid fold in 12.7 per cent (12 examinations), the remainder of the mucosa being entirely normal. In 10 other examinations (10.6 per cent) there were single linear ulcers which appeared as a crack in the otherwise healthy mucosa. These single linear ulcerations were up to 3 mm. in length.

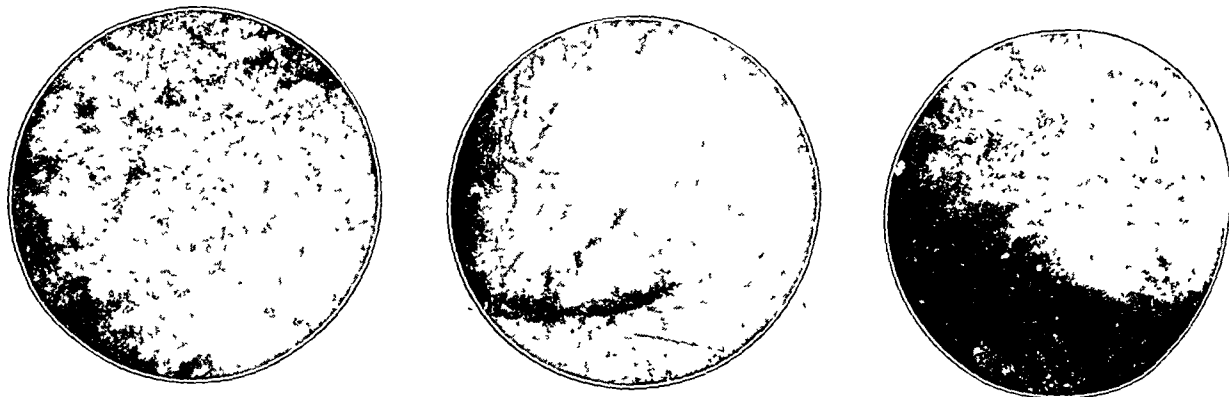
The ulcerations were multiple in 77 of the examinations (81.6 per cent) and included both pin point as well as linear ulcerations. When pin point or oval they were up to 1 to 2 mm. in diameter and as much as 3 mm. in length when linear.

There was sharp demarcation of the ulcerated area from the surrounding normal mucosa. There was no zone of inflammation, no crater or ragged edges and no exudate that could be seen. The ulceration appeared as a noninflammatory spot giving the impression that something had extruded through the mucosa into the lumen of the bowel. When examined with a proctoscope there was a definite break in continuity of the mucosa, and free blood was seen to ooze from these areas. When this was wiped off, the noninflammatory ulcerations

tissues of the gut provokes a dense cellular infiltration, leading to a thickening of the bowel wall and an excess of mucus production. These lesions gradually enlarge, so that on the mucosal surface localized areas of hyperemic tissues develop into abscesses, which break through the mucosa to the surface, causing minute hemorrhages with the discharge of bloody mucus, pus and eggs. These minute ulcers frequently become quite extensive, particularly if secondary infection develops."

In the sixth of a series of studies on schistosomiasis *mansoni* Koppisch⁴ describes the morbid anatomy of schistosomiasis as found in 147 autopsies on Puerto Rican patients. Depending on the degree of severity of infection and the duration of the disease, he grouped the cases according to whether the infection was minimal, moderate, severe, healed or doubtful. He found that 64.6 per cent of his cases were minimal and had no clearcut clinical manifestations of schistosomiasis or gross pathologic changes at autopsy which were of diagnostic import.

The group of moderately advanced cases comprised 14.2 per cent, and he noted that schistosomiasis was



Reproductions from kodachromes made through the proctoscope, showing ulcerations at the bifurcations of the capillaries superimposed on the vessels and outlining the blood vascular pattern

tion was visualized. In those instances which were reexamined the following day it was noted that many of the ulcerations seen on the previous day had disappeared.

The ulcerations were nearly always either at the bifurcation of the capillaries or lying directly on them. This relationship of the ulcerations to the blood vessels of the rectum was so constant that a definite relationship was established. It should be noted that the capillaries and in some instances the venules were readily visualized. In some instances in which the ulcerations were numerous they could be seen following the course of the capillaries, outlining them in a definite pattern.

The ulcerations were located below the rectosigmoid fold. In only 1 instance was there a suggestive area on the fold. Polyps were seen in but 2 cases, one being 3 to 4 mm. long, the other about 1 cm. and pedunculated.

COMMENT

The finding of ulcerations as described is in accord with the pathologic picture as given by Koppisch,² who has also described the method of extrusion of the ova of *S. mansoni* through the mucosa into the lumen of the bowel. This picture has been summarized by Faust,³ who states that "the presence of eggs in the

inapparent clinically. Severe cases made up only 81 per cent of the number, and this group is representative of the last stages of the disease. The mucosal venules and submucosal veins were dilated and engorged with blood in many of the severe cases even in the absence of acute colitis.

The present conception of schistosomiasis *mansoni* infection as just described in human beings has been that of bloody diarrhea with mucus, followed in the untreated cases by involvement of the liver and spleen in the so-called visceral schistosomiasis. Actually this picture in its various modifications takes place in only 4 per cent of the cases, as shown by Koppisch,⁴ and fails to account for the fact that ulcerations in the rectal mucosa were found in 60.7 per cent of 155 otherwise perfectly healthy young Puerto Rican men in whom the ova of *S. mansoni* had been found on fecal examinations.

It is evident from this study that the finding of ova of *Schistosoma mansoni* in the stools is equivalent in at least 60.7 per cent of the cases to the finding of ulcerations in the bowel mucosa and definitely indicates infection with this parasite. There is no such condition as a healthy carrier of *S. mansoni*, and the

2. Koppisch, E.: *Manson's Schistosomiasis*, J. A. M. A. 121: 936 (March 20) 1943.

3. Faust, E. C.: *Human Helminthology*, Philadelphia, Lea & Febiger, 1939.

4. Koppisch, E.: *Studies on Schistosomiasis Mansoni in Puerto Rico. VI. Morbid Anatomy of the Disease as Found in Puerto Ricans*, Puerto Rico J. Pub. Health & Trop. Med. 10: 395 (March) 1941.

presence of ova is equivalent to the diagnosis of schistosomiasis.

As a result therefore of these studies, careful examinations of the feces must be made of all persons who have been living in an area suspected of being infected with *S. mansoni* even though those persons do not complain of any symptoms or present signs suggestive of schistosomiasis.

SUMMARY

Ulcerations of the rectal mucosa were found in 60.7 per cent of 155 otherwise healthy Puerto Rican young men in whom ova of *S. mansoni* were discovered on routine fecal examinations. The bowel mucosa was generally soft, velvety and pale pink, with single or multiple ulcerations which were either pin point or linear. There was sharp demarcation of the ulcerated area from the surrounding normal mucosa and there was no zone of inflammation, no crater or ragged edges and no exudate. The ulceration was a noninflammatory break in the continuity through which oozed a small amount of blood. The ulcerations were at the bifurcation of the capillaries or lying directly on them. This relationship of the ulceration to the blood vessels was so constant that a definite relationship could be established. When the ulcerations were numerous, they outlined the pattern of the capillaries. The ulcerations were below the rectosigmoid fold. Polyps were seen in only 2 instances.

A review of the present concepts of schistosomiasis infections as pointed out by Faust, Strong, Koppisch and others in clinical-pathologic studies fails to account for this larger group of individuals who are infected with this parasite and have definite pathologic findings present in the rectal mucosa but do not have any clinical symptoms.

The diagnosis of schistosomiasis must be considered in any person who has lived in a geographic area suspected of harboring *S. mansoni*. It is the responsibility of the physician to rule it out by careful repeated examinations of the stools by any and all concentration methods even though no symptoms are present. Infection with *Schistosoma mansoni* indicates schistosomiasis. There is no such condition as a healthy carrier of schistosomiasis.

William Harvey.—William Harvey (1578-1657), the greatest name in English medicine and one of the greatest names in all experimental science, was born in Folkstone. He attended Granville and Caius colleges, Cambridge, and afterward studied at Padua, where his professor was Fabricius, whose work on the valves in the veins and the development of the chick profoundly influenced Harvey's two great works. He returned to England, taught at the College of Physicians in London, saw military service in the Civil War on the Royalist side, died in London at an advanced age and was buried at Hempstead, Essex. *De motu cordis et sanguinis* (On the Motion of the Heart and Blood) was published in 1628 and went through many editions. *De generatione animalium* (on the Generation of Animals), published in 1651, gives him the right to the title of the father of embryology. It has been claimed for others that they announced the circulation of the blood. Undoubtedly this is partially true. Fabricius described the valves in the veins, but he missed their significance. Servetus (Christianismi Restitutio, 1553) described the pulmonary circulation. Cesalpinus and Realduus Columbus both described the circulation, but from speculation; Harvey proved it by experiment.—Clendening, Logan: Source Book of Medical History, New York, Paul B. Hoeber, Inc., 1942.

AMEBIC ABSCESS OF THE LIVER UNSUSPECTED UNTIL PERFORATION

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UNITED STATES NAVAL RESERVE

The sudden perforation of unsuspected, asymptomatic amebic abscesses of the livers of 2 naval patients returning from the South Pacific combat zone has led us to speculate on the possibility that a similar type of condition may be encountered among other persons who are returning from these regions. Because of the considerable delay between the onset of symptoms and the recognition of the disease in the 1933 epidemic and the consequent loss of life, it seemed advisable to report these 2 recent cases.

The patients were enlisted personnel of the Navy who had been on duty on one of the islands in the South Pacific war zone. They were returned with diagnoses of filariasis which they had on admission to a naval hospital on the mainland.

In both cases a diagnosis of amebic abscess of the liver was made only after perforation of the abscess to the subdiaphragmatic region. In the first case, although emetine therapy was instituted and a definite specific response was obtained, surgical drainage seemed advisable because of progressive signs and symptoms of impending perforation of the abscess through the diaphragm into the right pleural cavity. In the second case, in spite of daily doses of emetine for three days, the symptoms and signs were so acute and severe that perforation of the abscess into the peritoneal cavity was feared, and immediate operative drainage seemed imperative.

Of striking significance in each case was the similarity of symptoms when the abscess perforated to the right subdiaphragmatic region. These symptoms consisted in the sudden development of aching pain in the right shoulder, in the right costovertebral region and lower portion of the right thorax associated with chills and fever. The thoracic pain extended to the abdomen, and muscle spasm was present in the right upper quadrant. Roentgenograms of the thorax revealed no evidence of pneumonia but progressive elevation of the right half of the diaphragm and a loss of the acute cardiophrenic angle in the other. The temperature varied daily in both cases over approximately 4 degrees F., and in the second case the pulse rate increased to a maximum of 140 beats per minute on the day of operation. Pronounced leukocytosis was present in both cases. Exposure of the right subdiaphragmatic space was made through right subcostal incisions. The amebic abscess in the liver was found to communicate with the subdiaphragmatic abscess. Drainage of both was followed by progressive and complete recovery.

Captain Walters, Captain Watkins and Lieutenant Butt are on leave of absence from the Mayo Clinic, Rochester, Minn.

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REPORT OF CASES

CASE 1.—On Jan. 16, 1943 a man aged 23 was admitted to the hospital from the South Pacific zone with a diagnosis of lymphangitis of the right spermatic cord. The right epididymis and right spermatic cord had been swollen for four and a half months. He was studied thoroughly by the Filariasis Commis-

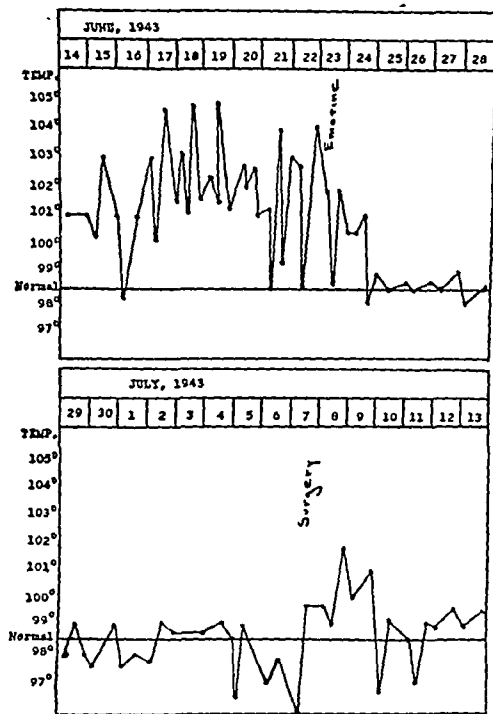


Fig. 1 (case 1).—Temperature chart showing intermittent fever following perforation of amebic abscess of the liver to right subdiaphragmatic region. The response to full course of emetine therapy may be noted.

sion. It was possible to place him on outside duty on March 9, and later he was placed on an outside work detail. Roentgen therapy was given over both inguinal and femoral regions, left axilla and left epitrochlear region from April 7 to 14 inclusive. On the patient's return from a therapeutic leave of thirty days he was placed on the outside detail, which involved hard work. Swelling of the spermatic cord or epididymis did not recur.

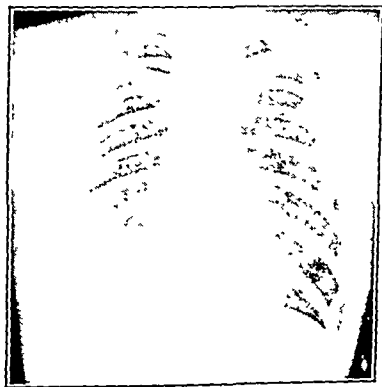


Fig. 2 (case 1).—Elevation of right half of diaphragm on July 5, 1943.

Considerable tenderness and muscle spasm were present in the upper part of the abdomen on the right side. The liver was enlarged and tender. The leukocyte count was 28,000 per cubic millimeter of blood. Roentgenographic examination of the thorax was negative. Administration of sulfadiazine was started on June 16. A chill occurred on June 17, but the blood smear made at that time was reported negative for malaria. On June 20 the patient still complained of severe pain in the lower

part of the thorax. Repeated roentgenologic examinations of the thorax after June 16 showed a progressive elevation of the right half of the diaphragm with an irregular dome-shaped bulge (figs. 2 and 3).

The patient gave a history of having had amebiasis in 1941 with positive findings on examinations of the stools. After a course of emetine therapy stool examinations had given negative results and at the time of the admission to the hospital in June 1943 gave negative results for ameba. There had been no diarrhea.

On June 23 a diagnosis of subdiaphragmatic abscess on the right side was made. Treatment with emetine hydrochloride and carbarsone was started; 3 grains (0.2 Gm.) of emetine hydrochloride was given on the first day, 2 grains (0.13 Gm.) on the second day and then 1 grain (0.065 Gm.) the following four days; a total of 9 grains (0.6 Gm.) was administered. Two days following the institution of emetine therapy the patient's temperature returned to normal and varied from 97.5 to 99 F. for twelve days. During this time the right half of the diaphragm continued to elevate progressively.

Drainage of the subdiaphragmatic abscess was decided on, and accordingly this was done on September 7. An abscess cavity 10 cm. in diameter was found in the right lobe of the liver, with an opening 5 cm. in diameter into the subdiaphragmatic abscess cavity. Both cavities contained approximately



Fig. 3 (case 1).—Increase in elevation of diaphragm on July 23, 1943.

1,000 cc. of yellowish white, thick, purulent debris with clots of fibrin. Smear and culture revealed gram-positive cocci. A strip of iodoform gauze impregnated with sulfanilamide powder was placed in the cavity of the liver and Penrose drains in the subdiaphragmatic abscess cavity.

The temperature rose to 101.5 F. for two days after operation and then returned to normal. Roentgenologic examination of the cavity, after injection

of radiopaque oil (lipiodol) revealed that the cavity was decreasing progressively. A catheter, which was inserted into the abscess cavity in the liver for drainage at the time of operation, was removed completely on October 12. Healing of the sinus occurred in a few days. Since that time the patient has been well and afebrile.

CASE 2.—A man aged 23 was admitted to the hospital on Aug. 6, 1943 with diagnosis of lymphadenitis. He had served in Samoa from March 19, 1942 to Jan. 17, 1943 and in New Caledonia, New Hebrides and Russell islands until July 13, 1943.

On September 3 the patient was examined by the Filariasis Commission, which found a little residual evidence of adenitis. He was placed on outside detail, which involved hard work. On September 30 he complained of sore throat; on examination his temperature was 99.8 F. and his throat was red and infected. Culture of material from the throat revealed hemolytic streptococci. Accordingly on October 1 the diagnosis was changed to acute pharyngitis. On October 4 the patient complained of severe spasmodic pain in the right upper quadrant of the abdomen with tenderness and muscle spasm particularly in the region of the upper right rectus muscle. The condition was thought to be diaphragmatic pleurisy or beginning amebic abscess of the liver. The patient had pain and tenderness over the right lower portion of the thorax and abdomen, intermittent fever to 103 F. and an occasional chill (fig. 4). Progressive downward enlargement of the liver occurred. The leukocyte count was 19,500 per cubic millimeter of blood. Roentgenologic examination of the lungs showed no evidence of pneumonia but a widening of the cardiophrenic angle (fig. 5).

Blood culture was negative, as was examination of the stool for amebas. The patient was given 1 grain (0.065 Gm.) of emetine on October 7, 8 and 9 without apparent benefit. Roentgenograms of the thorax on October 9 revealed an increase in the elevation of the right side of the diaphragm and no evidence of pneumonia.

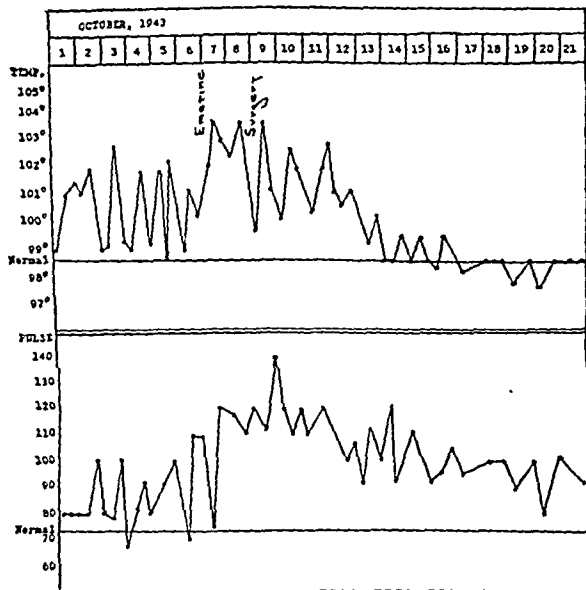


Fig. 4 (case 2).—Temperature chart showing septic type fever with proportionate increase in pulse rate. Temperature and pulse failed to respond to administration of emetine and were increased at time of emergency surgical drainage.

A diagnosis of hepatic abscess of unknown origin was made and, in view of the extremely serious condition of the patient, the progressive increase in the pulse rate to 140 beats per minute and the temperature to 103.5 F., operation seemed advisable. This operation was undertaken in spite of the possibility that an amebic abscess of the liver with perforation might be encountered and that an inadequate amount of emetine had been given. On October 9 a subdiaphragmatic abscess containing about 8 ounces (240 cc.) of typical amebic material was drained through a right subcostal incision. An abscess cavity approximately 12.5 cm. in diameter was found in the

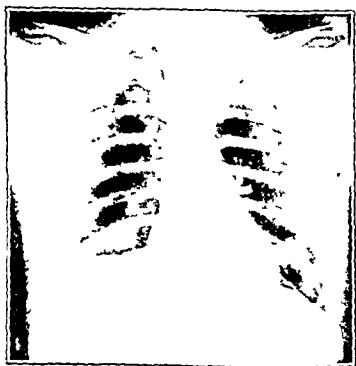


Fig. 5 (case 2).—Elevation of right half of the diaphragm with a change in the right cardiophrenic angle to a right angle.

right lobe of the liver by needle aspiration. This cavity was opened and about 500 to 700 cc. of creamy white pus with fibrin and cellular debris was drained out. Smear and culture revealed *Endamoeba histolytica*. A strip of iodoform gauze, impregnated with 5 Gm. of sulfanilamide, was inserted into the abscess cavity within the liver. This was removed on the twelfth postoperative day after repeated daily soakings with 1:5,000 solution of potassium permanganate. Penrose drains were used to drain the subdiaphragmatic abscess.

On the evening of the day of operation the patient gave evidence of shock, with rapid pulse rate and blood pressure of 76 mm. of mercury systolic and 54 mm. diastolic. Five hundred cc. of blood plasma was administered. Two grains (0.13 Gm.) of emetine was injected subcutaneously on the day of operation and 1 grain (0.065 Gm.) each day thereafter for

seven days. After removal of the gauze pack from the abscess cavity in the liver, a catheter was inserted into it for irrigation and drainage in order to allow complete closure of the cavity. The fever decreased by lysis and became normal on October 17. The cavity obliterated itself and the sinus healed after removal of the catheter.

COMMENT

Amebiasis is a much more frequent disease than has been commonly supposed. It is certainly endemic in many portions of the United States and present in all sections. With the present worldwide dispersal of our armed forces and their subsequent return home, this disease will be encountered with increasing frequency. The percentage of cases of amebiasis in which amebic hepatitis or abscess develops is unknown and depends on several factors, chief of which are promptness of recognition and thoroughness of treatment. It seems reasonable to suppose that under utopian conditions, if all patients with fresh infections of *Endamoeba histolytica* were promptly and thoroughly treated amebic disease of the liver would not occur, as hepatic involvement is always a secondary complication to the disease in the colon. This statement does not mean that every patient who has amebic disease of the liver has a diarrhea or even that he has had diarrhea. It is apparent that many amebic infections of the colon are largely asymptomatic. Of Ochsner and DeBakey's¹ 741 collected cases a history of diarrhea was found in 58 per cent and diarrhea at the time of the patient's admission to the hospital because of the amebic disease of the liver was found in only 21 per cent. Seventeen and four tenths per cent of the number of patients admitted because of amebic dysentery to the Charity Hospital in New Orleans had amebic abscess of the liver.

Our first patient gave a history of amebic dysentery in 1941. After emetine therapy stool examinations did not reveal any amebas and since that time noticeable or remarkable episodes of diarrhea had not occurred. He did not have diarrhea while in this hospital. In case 2 diarrhea had not occurred at any time.

Although the symptoms of amebic abscess of the liver are chills and fever, lower thoracic and upper abdominal pain accompanied by nausea and vomiting, loss of weight and weakness, these symptoms were entirely lacking in our 2 cases until the amebic abscess of the liver perforated to the subdiaphragmatic region. Enlargement of the liver and abdominal tenderness also were absent until perforation occurred. The finding of *Endamoeba histolytica* in the stools would clinch the diagnosis in cases in which the usual symptoms and physical findings are encountered. *Endamoeba histolytica*, however, was absent from the stools of both our patients.

Ever since Rogers² in 1922 clarified the etiology, pathology and treatment of amebiasis of the liver, the problem has been one of increasing medical and decreasing surgical significance. Nevertheless, the surgeon plays an important, and frequently dramatic, role in the successful treatment in these cases.

As a result of Rogers' many years of study of amebiasis in India, he was able, for the first time, to establish three fundamental facts which completely revolutionized the therapeutic concept of this disease. First, he

1. Ochsner, Alton, and DeBakey, Michael: Surgical Considerations of Amebiasis, Internat. Abstr. Surg. 69: 392-403, in Surgery, Gynecology and Obstetrics, October 1939, Amebic Hepatitis and Hepatic Abscess.
2. Rogers, Leonard: Amebic Liver Abscess: Its Pathology, Prevention and Cure. Lecture I. Etiology and Pathology of Amebic Liver Abscess, Lancet, 1: 463-469 (March 11), Lecture II. The Varieties and Treatment of Amebic Liver Abscess, ibid., March 25, pp. 569-575; Lecture III. The Prevention of Amebic Liver Abscess and the Recent Reduction in Its Prevalence and Mortality, April 8, pp. 677-684, 1922.

conclusively demonstrated that amebic abscess of the liver is caused by *Endamoeba histolytica* specifically and is therefore differentiated from pyogenic abscess of the liver. Second, he proved beyond question that emetine is a specific and highly effective drug in the treatment of amebic disease of the liver. Third, he reduced the mortality rate in his cases from 57 per cent to 14 per cent by substituting emetine therapy combined with closed aspiration of the abscess for the previously used open operation. Berne³ reported the results of treatment in 63 cases at the Los Angeles General Hospital. Nineteen patients, including 3 who had hepaticobronchial fistula, were treated with emetine alone and all recovered. Eighteen patients were treated with emetine first and subsequently aspiration was performed; all recovered. Twenty-six patients were treated by open surgical drainage, some with and some without emetine; 14 (54 per cent) died.

Ochsner and DeBakey⁴ reported a series of 80 cases in which open drainage was performed with a mortality rate of 22.1 per cent, whereas by means of conservative treatment (administration of emetine hydrochloride with or without drainage by aspiration) in 83 cases they reduced the mortality rate to 3.6 per cent. Following this statement, however, they said "Of interest also is the fact that aspiration was performed without preliminary emetine in 2 of the 3 fatal cases. . . . The other patient was treated with emetine and anayodin on the medical service for almost three weeks and no attempt made to drain the hepatic abscess. At autopsy a huge hepatic abscess measuring approximately 20 cm. in diameter was found in addition to several smaller abscesses. We are firmly convinced that these three tragedies could have been averted, the first two by the preliminary administration of emetine and the third by aspiration of the abscess in addition to the use of emetine."

We believe that, whenever amebic abscess of the liver is suspected, treatment with adequate amounts of emetine should be tried first. If the patient does not recover completely or if persistent enlargement or deformity of the liver is demonstrated clinically or roentgenologically, aspiration is indicated, but it is preferable not to perform it through an uninvolved serous cavity. Open surgical drainage should be used only when acute perforation into the peritoneum or pleura is actual or impending or when there is proved pyogenic contamination.

SUMMARY

In the 2 cases of unsuspected amebic abscess of the liver reported, symptoms occurred only on perforation of the abscess to the right subdiaphragmatic region. Both patients had had naval duty at one or more of the South Pacific islands and had been returned to the mainland because of a diagnosis of lymphadenitis. In neither case was diarrhea present nor were amebas found in the stools. In case 1 the general condition improved after the administration of emetine but the subdiaphragmatic abscess increased in size and open operation was performed. In case 2 there was no apparent response to emetine. Because of the patient's critical condition, surgical drainage was performed as an emergency procedure. Both patients made excellent recoveries.

3 Berne, C. J. Diagnosis and Treatment of Amebic Liver Abscess, *Surg., Gynec. & Obst.* 75: 235-238 (Aug.) 1942.
4 Ochsner, Alton and DeBakey, Michael: Amebic Hepatitis and Hepatic Abscess. An Analysis of 181 Cases with Review of the Literature, *Surgery* 13: 460-493 (March), 612-649 (April) 1943.

Clinical Notes, Suggestions and New Instruments

A PNEUMATIC LEG SPLINT

A PRELIMINARY REPORT

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This piece of fracture equipment is designed to employ the use of air properly encased between two layers of supporting material. It is an inflation unit for emergency care of fractured lower extremities. The two layers are cut to selected measure-

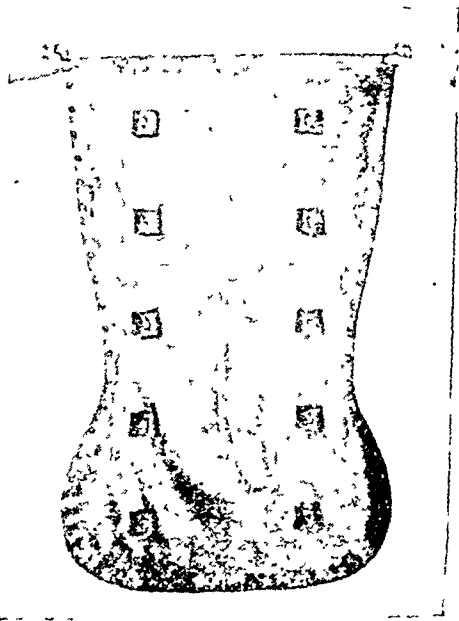


Fig 1.—The pneumatic leg splint open. Note valve at upper thigh part, side cuffs with snaps, and hooks for lacing.

ments and sealed at the edges. The air intake is through a valve located at either the upper or the lower portion (figs 1 and 2). The latter location is preferable. Hooks are attached to the anterior coaptation edges and evenly spaced. The unit is folded around the affected part and laced with leather lacing material in the same fashion as a boot. Inflation follows, either by mouth blowing or by the use of a pump. The fractured extremity is held in manual traction by an assistant during application and inflation, being released when the desired amount of air has been introduced. This is minimal and is approximately 8 to 10 mm. of mercury, or a quantity sufficient to produce splinting comfort as evidenced by the patient's reaction.

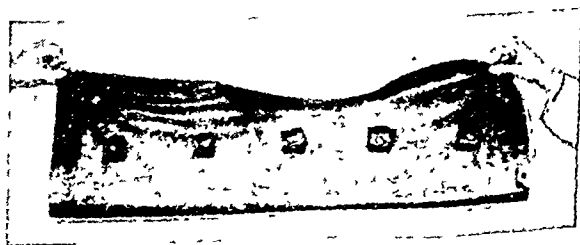


Fig 2.—The pneumatic leg splint closed. Lateral view. Note position of valve and the hooks for lacing arrangement. Also cuffs and snaps for Thomas splint attachment or application of additional support from poles, sticks, broom handles, mop handles and the like.

Investigation of this problem has been carried on in the Department for Surgery of Trauma, Hurley Hospital, Flint, Mich. So far only fractures of the lower extremity have

been managed, for which the splint seems more appropriate. They were simple, compound, single and multiple in type, involving the femur, knee and leg. The unit remained in place from a few hours to six days and was considered only on an emergency basis, filling the gap between the occurrence of the fracture and the beginning of some definitive type of treatment. This obviously means the phase which includes first aid and associated transportation requirements.



Fig. 3.—The pneumatic leg splint in place, inflated, for fractured tibia and fibula, lower third. Supplementary splint aids are unnecessary.



Fig. 4.—Same as figure 3, side view.

The first material used was synthetic rubberized fabric. For the past few months a more durable, pliable and specially prepared material has been obtainable in small amounts. Construction changes took place. Cuffs with snaps or buckles were added to the sides so that the splint could be attached to a Thomas splint (figs. 5 and 6). Several splints were made with a canvas covering, thus giving added protection against punctures, wear and tear. This acted as an envelop for the inner lighter compartment, the inflatable portion, making the unit quite snag proof. Reinforcements were added to areas subjected to extra stress and strain. Two sizes were made, large and medium, the difference being in length and circumference by a few inches. The use of broom and mop handles or any stick of proper size has been suggested for additional

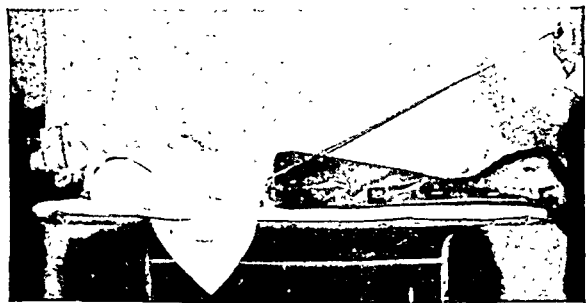


Fig. 5.—Combination of Thomas splint and pneumatic leg splint for fractured femur—mid third. The Thomas splint is applied first and held upward. The pneumatic leg splint is folded around the extremity, deflated. The Thomas splint is then lowered, attached to the pneumatic leg splint, and the latter is inflated. Fixation and auto traction are thus produced.

support or facilitation of handling or transportation. These are attached to the splint by means of the cuffs.

For fractures involving the knee, lower end of the femur, leg and ankle the Thomas splint is not used (figs. 3 and 4). The latter is added as a supplemental aid in femoral fractures—middle and upper thirds. Application of the Thomas splint is done first, attached to the sides of the pneumatic leg splint by cuffs with snaps or buckles (fig. 5). The Thomas splint is held upward; the pneumatic leg splint is applied and inflated after attachment to the Thomas splint (figs. 6 and 8). Application with or without the Thomas splint is simple and rapid. The unit can be stored in a small space.

COMMENT

The principle of the pneumatic leg splint is similar to that of the pillow splint, except that air pressure is constant and evenly distributed. The amount of air used, as stated, is a quantity sufficient to produce splinting comfort. In all cases comfort was obtained. Transportation of the patient was accomplished with a minimum of discomfort. All movements of the lower extremity were practically painless. Frequent check-up x-ray examinations showed little or no change in the position of bone fragments. There was minimal edema at the fracture site. There was an intimate hugging of the surface contour of the extremity by the inner layer with the space for air between the layers remaining constant (figs. 7 and 9).



Fig. 6.—The pneumatic leg splint, inflated, with Thomas splint attached, for midfemoral fractures. Note pressure against the longitudinal Thomas splint bars. Traction may be added from lower foot portion of the pneumatic leg splint to end of Thomas splint.

The contact of rubber and skin over a period of time is expected to produce irritation. This finding was present over the malleoli in cases in which the splint remained in place for



Fig. 7.—Fracture of tibia and fibula at junction of middle and lower thirds. Anteroposterior view. Note inner layer of the splint hugging the surface contour of the leg. Note outer splint layer with air spaces between.

five or six days. It was negligible and quickly disappeared following removal. The application of stockinet eliminated this possible hazard. There are a great many fractures of the lower extremities that need only coaptation for emergency

splinting. The constant air pressure, however, produces in itself a certain amount (or degree) of traction by reason of a downward push against the prominences of the extremity. This has been called auto traction. The combination of a compound fracture and a burn indicates its use. The continuous pressure exerted would be helpful in the management of both conditions, and the lessened edema at the fracture and burn sites aids in



Fig. 8.—Same as figure 6, side view.

reducing secondary shock tendency, retarding absorption of the products of tissue trauma. The buoyancy afforded suggests its use as an emergency splint for a sailor with a fractured leg who has to abandon ship (fig. 10). By holding the arms outstretched and the free extremity next to the splinted one, the wearer easily remained afloat on his back with little or no tendency to listing.

Compressed air between layers of rubber or supporting material for splinting purposes is not new. However, the literature contains no available information regarding its use for treatment of fractured extremities, emergency or otherwise.

R. C. Wingfield¹ designed a pneumatic apparatus which was made of different sizes and used as a restrictor of chest



Fig. 9.—Same as figure 8, lateral view.

movement in pulmonary tuberculosis and thus aided in promoting fibrosis and healing. This preceded artificial pneumothorax. George Robertson and Ruth Millar² made hollow pneumatic rings of 1½ inches inside diameter strengthened

with cord and covered with stockinet to be used as pressure pads inside a box splint. These were substituted for the 'birds' nests' formerly used, eliminating ulceration and irritation frequently found beneath the heel. The stocking eliminated the sweat hazard. Several were used in each case. Douglas Beverly,³ in discussing the local treatment of burns, describes a compression dressing called "the transparent jacket system." This is a transparent compartment with walls made of light material, having an intake and an outlet valve. While the pressure is continuous, it may be controlled in amount. The burned surface can be seen at all times. It is also used as a pressure dressing for immobilization of skin grafts

SUMMARY

A pneumatic leg splint has been successfully used many times in lower extremity fractures.

It may be combined with a Thomas splint, especially indicated in femoral fractures.

It is consistently comfortable.

There is minimal edema at the fracture site.

Pressure is low, constant and evenly distributed.

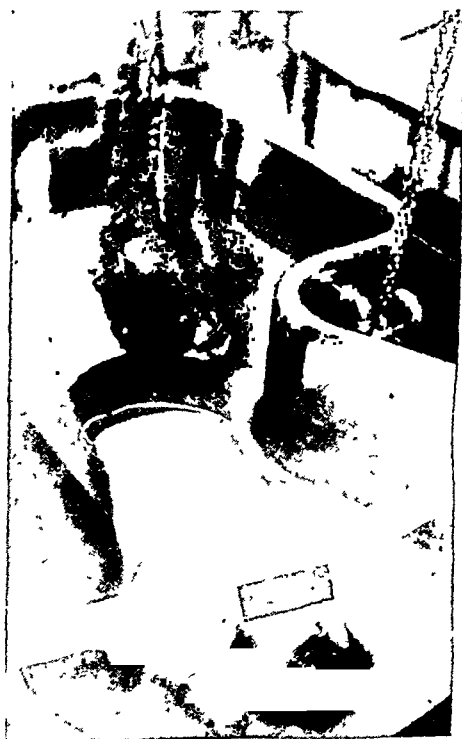


Fig. 10.—The pneumatic leg splint in place on a right lower extremity, showing buoyancy in water. There were 20 inches of water in the Hubbard tank. By keeping the arms slightly outstretched, the patient's head and trunk remained up. There was a slight list to the unaffected side. This was controlled by changing position of the unaffected extremity. Application of a Mae West life jacket would obviously be an additional safety factor.

It is quickly and easily applied.

It is recommended only as an emergency and transportation unit.

It can be used as a pressure dressing for complicating lower extremity burns.

It floats.

It may be useful as an added piece of fracture equipment, aboard ambulances, emergency hospital services and in the surgical divisions of the armed forces.

Experimental work continues.

Arrangements are being made for the commercial supply of the unit under patent protection.

1. Wingfield, R. C.: A Lung Splint, *Lancet* 1:17, 1926.
2. Robertson, G., and Millar, R. E.: A New Pneumatic Splint Pad, *Lancet* 2:508, 1927.

3. Beverly, D.: The Treatment of Burns and Other Extensive Wounds with Special Emphasis on the Transparent Jacket System, *Surgery* 15:96, 1944.

Council on Industrial Health and Council on Pharmacy and Chemistry

Many hundreds of articles have been published on the treatment of burns. Some of these have been excellent reviews, but frequently they were published in periodicals not available to the majority of the medical profession, were out of date almost as soon as prepared, or emphasized some aspect of treatment which later was disputed warmly. Other communications presented information in an orderly and concise fashion which made them almost necessary additions to every medical library. One such book that has been well received is *Burns, Shock, Wound Healing and Vascular Injuries*, prepared under the auspices of the Committee on Surgery of the Division of Medical Sciences of the National Research Council (1943).

Nevertheless, many letters arrive at the office of the Council on Industrial Health and the Council on Pharmacy and Chemistry asking for information on the treatment of burns. These letters indicate the need for a status review which will present in digest form pertinent facts relating to the various methods now commonly employed to treat burns. The following review is offered for this express purpose. It is not for the specialist but for the general practitioner and the industrial physician. It is hoped that the report will show that the ideal agent has not been developed, that highly complex mixtures are as irrational for this form of treatment as for others, that each new highly publicized treatment or drug should be studied with a critical eye before accepting the accompanying claims, that the best treatment on the whole is the simplest and that any treatment is a tedious and painstaking undertaking. On many occasions the Council on Pharmacy and Chemistry has been asked to consider some proprietary drug or mixture proposed for the treatment of burns with an astounding array of claims. With few exceptions the claims have far exceeded the therapeutic value, and not infrequently the agent sooner or later has sunk into obscurity. A complete bibliography for this report will be included in the reprints.

Carl M. Petersen, M.D., Secretary. Austin E. Smith, M.D., Secretary.
Council on Industrial Health. Council on Pharmacy and Chemistry.

LOCAL TREATMENT OF THERMAL CUTANEOUS BURNS

Over one thousand papers dealing with burns have been listed in the *Quarterly Cumulative Index Medicus* during the past decade, and the number is increasing rapidly under the stimulus of the high incidence of thermal burns in the present war. Some two hundred articles largely concerned with local treatment alone have appeared in the last few years (Harkins¹ listed seventy-five different preparations which have been proposed for local burn therapy). Examination of these reports supports the belief expressed by many authors that there is at present no single preparation or method of therapy which will meet the needs of every case or solve all the problems involved in the treatment of a burned area.² However, some of the more widely used local methods may give acceptable results if properly applied and if the systemic treatment of the patient is adequate.³ Bettman,⁴ Bunyan,⁵ Harkins,⁶ Laverder,⁷ Aldrich,⁸ Wakeley,⁹ Allen and Koch¹⁰ and Atkins,¹¹ to name only a few, have reported excellent results on large series of patients while employing widely varying local measures of treatment. The only factor common to the procedures used by each of these authors, other than systemic treatment, was thorough but gentle cleansing of the burned area under rigidly aseptic precautions.

Local treatment of burns is in a state of flux, which is apparent to all who are familiar with the subject. The unsatisfactory results obtained with some of the older methods of treatment have led to considerable experimentation. In spite of the voluminous literature and the many reviews of the local methods of burn treatment,¹² the lack of careful comparative study of these measures leaves a place for a definitive statement of the effects which local treatment seeks to produce and the results which may be expected from the application of the more widely used methods.

It is not the function of this report to discuss the systemic treatment of burns, the aim of which it is agreed is the return to a normal physiologic state. The direction and degree of such alterations can now be determined and the means for producing the necessary corrections are generally known.¹³ The office of the Surgeon General¹⁴ issued a circular letter for the treatment of burns in the Army. It outlined the prevention and the treatment of shock, the administration of adequate amounts of morphine and the intravenous infusion of plasma, prophylactic chemotherapy, prophylaxis against tetanus and possibly gas bacillus infection and local treatment.

Later the Medical Division of the Office of Civilian Defense¹⁵ announced a revision of the pamphlet "Treatment of Burns and Prevention of Wound Infections" to incorporate new techniques and to recognize directions of the Committee on Chemotherapeutic and Other Agents and the Subcommittee on Burns of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. The most notable change in the pamphlet is the withdrawal of the recommendation of the use of ointments or jellies containing tannic acid in the first aid treatment of burns. The pamphlet describes "open"

and "closed" treatment for burns. The "open" treatment, apparently the treatment of choice, consists essentially of the application of boric acid ointment or petrolatum, with pressure dressings. (More recently, boric acid has been criticized because of its toxic properties.) The "closed" treatment (tanning or eschar method) is recommended only if not more than twenty-four hours has elapsed, if the burned area has not been grossly contaminated, if strict surgical asepsis is employed and if coagulation is readily accomplished.

The liberal administration of oxygen also has been advocated.¹⁶ Few surgeons will proceed with more than preliminary care of the burned area before shock is controlled. The following discussion of local treatment is made with the assumption that the probably greater importance of proper systemic treatment is recognized and that such treatment will be carried out.

The usual classification of burns as to depth has been heeded in this report. First degree burns include only those which involve the most superficial layers of the skin and produce simple erythema. Second degree burns produce blistering and may be of varying depth but always leave intact some elements of the skin, providing islands of epithelium from which regeneration can occur. In third degree burns the full thickness of the skin is lost, and these always require skin grafting for rapid healing of even moderately sized areas. The latter group includes the deeper burns (grades 4, 5 and 6, Dupuytren).

Obviously a discussion of the proper time and methods to be used for grafting deep burns has no place in a review such as this and is omitted. Subsequent discussion on treatment is limited to the medicinal preparations more commonly employed at this time.

TANNIC ACID

Tannic acid was introduced by Davidson¹⁷ primarily to fix and prevent the absorption of toxic substances from the burned area. Many authorities today are not willing to admit that this fixing action of tannic acid is responsible for any effectiveness in reducing the mortality rate of severe burns, and a wave of disapprobation has followed the use of this substance in the present war.¹⁸ Probably the first denial that tannic acid has reduced the mortality rate in burns came from Stanley J. Seeger, based on statistical material from Milwaukee Children's Hospital. However, the benefits which may have followed its use and the reasons for its failures should be examined critically in view of its past popularity. It has been stated frequently that an escharotic produces the following effects by sealing over a properly prepared burned surface:

1. Lightens shock by lessening or abolishing pain and the external loss of plasma.
2. By forming an impervious covering, prevents the invasion of bacteria and thereby secondary infection.
3. By forming a painless, tough dressing which does not require frequent changing, makes the patient comfortable, decreases nursing care and allows for ready transportation.
4. By fixing "burn toxins," if any, prevents their absorption and consequent systemic effects.
5. Lends itself to the adequate handling of large numbers of casualties.

Despite the beneficial effects, it must be admitted that tannic acid has its disadvantages, and some unfortunate experiences have followed its use. Those most commonly reported in the literature are the following:

1. The eschar develops slowly and requires frequent applications, thus allowing considerable pain and external plasma loss and requiring the time of a comparatively large nursing staff during the first twenty-four hours.

2. The eschar formed is thick, inflexible and unyielding. On circumferential burns and over the pulps of the fingers it tends to produce ischemic and pressure necrosis. Over joints it tends to crack or, by prolonged immobilization (especially of the fingers) to produce fixation. It tends to curl at the edges; this curling and the formation of multiple cracks allows openings for secondary invaders. On the face it produces unpleasant immobility and by contracting tends to distort yielding structures. Ectropion often follows the use of tannic acid on burns of the eyelids.

3. Near body orifices, especially on the perineum, its integrity cannot be maintained and infection supervenes.

4. Infection once started spreads rapidly and the focus of infection is not readily found under the thick, rigid eschar. Many workers feel that it is impossible to prevent infection from developing beneath the eschar, especially in third degree burns. If infection develops, most surgeons agree that the eschar should be removed, a painful procedure.

5. Remaining islets of epithelium may be destroyed by the fixing action of tannic acid or the surgery which may be required to remove the eschar. Tannic acid has been reported to cause liver cell necrosis.

6. If third degree burns are treated with tannic acid a proper eschar is difficult to produce. Once formed, the eschar delays sloughing of devitalized tissue, the formation of healthy granulation tissue and the preparation of the wound for grafting. Further, the formation of an eschar over deep burns provides an ideal environment for the development of infection in areas where antiseptics and the escharotic cannot reach.

7. Tannic acid is said to be capable of causing liver damage.

In reviewing the literature with the aforementioned factors in mind there is almost complete unanimity on certain points. Thus, while Atkins¹¹ and Ogilvie¹⁹ report that if done properly tanning of the hands produces no further damage, it is generally agreed that tannic acid should not be used on the face, hands, feet or surfaces near body orifices where contamination is probable (perineum, genitalia²⁰). If circumferential burns of the extremities are tanned, the limb must be constantly watched for interference with the distal circulation,²¹ and preferably the tan should be split lengthwise to allow for the development of edema.²² Great care must be used to prevent permanent fixation of joints involved in the eschar.²³ Although immobilization to insure rest of a limb is widely recommended,²⁴ it may be considered safest not to use tannic acid on areas which will be immobilized in a constricting shell if an escharotic is used.

Other than shock, the most common complication of a burn is secondary infection.²⁵ Although a fresh burn has been said by some to be made sterile by the action of the causative agent, in practice all burns may be regarded as contaminated.²⁶ Moorhead's dictum "A burn is an infected wound due to heat"²⁷ warrants consideration. It is a common saying that tanning a burn without proper cleansing and débridement is akin to primary closure of an infected wound.²³ It follows that an essential preliminary to the application of tannic acid or any other escharotic is the careful cleansing of the burned area and the most thorough débridement practical under the most rigidly aseptic conditions.²⁸ The necessity for careful masking of the surgical team has been emphasized again and again.²⁹ There should be no compromise in this regard. The surgeon who has charge of a burned patient has a responsibility which can be fulfilled only by the application of much care and a great deal of hard work. There are two exceptions to the rule of the earliest possible (after control of shock) complete aseptic preparation of the burned area: in extensive burns when the immediate danger to life is great a local application may be life saving,⁹ and when there are a large number of victims thorough preparation may be impossible.³⁰

In each of these conditions the surgeon's responsibility has not ended with the local application. A complete preparation should be done as soon as possible. Many of the infections occurring under a tannic acid eschar may be due to lack of attention to the proved surgical principle: adequate preparation of a contaminated wound before primary closure.³¹ Harkins's⁶ "principle of time" is important. Harkins has stated that tannic acid should never be applied after twenty-four hours without due reason. Todd³² considers any burn older than twelve hours to be infected and treats it as such.

Most investigators of burn therapy prefer to clean and debride the affected area under an anesthetic.³³ Because of its convenience, intravenous anesthesia was hopefully tried,³⁴ but the results were not promising.³⁵ Gas and ether are preferred.³⁶ If suitable apparatus and a skilled anesthetist are not available, open drop ether is recommended.³⁷ Some assert that no anesthetic should be used if possible.³⁸ Koch states that morphine analgesia is sufficient if the preparation is gently done.¹⁰ Vigorous scrubbing and harsh cleansing agents are generally frowned on.³⁹

The after-care of the tan is vitally important in guarding against infection.⁴⁰ Bacteria find entrance from the edges and through cracks in the eschar.⁴¹ The daily painting of these ports of entry with 1 per cent gentian violet⁴² or Aldrich's⁴³ triple dye mixture, or dusting with sulfanilamide powder¹⁹ has met with some approval. Daily rigorous inspection of the tan is essential.⁴⁴ If infection occurs the tan over the area may be removed⁴⁵ by moist saline packs or baths or by surgery, the infected area cleaned with warm saline solution, sodium hypochlorite or Dakin's solution,⁴⁶ and treated with sulfanilamide powder and warm saline soaks⁴⁷ or with the aniline dyes.⁴⁸ In this and all subsequent discussion "saline solution" will be taken to mean "isotonic solution of sodium chloride."

Third degree burns heal naturally by the sloughing of devitalized tissue, the formation of granulation tissue and the growth of epithelium from the edges, a long, inefficient process. Such healing is said to be greatly hastened by surgical care which involves the judicious removal of dead tissue,⁴⁹ prevention of infection and the earliest possible skin grafting of all third degree burns. Covering such wounds with an eschar hinders this program, and many authorities are of the opinion that an escharotic should never be used on third degree burns.⁵⁰ Immediate excision and grafting of localized deep burns has been advocated,⁵¹ and there appears to be evidence to recommend this action. It is, however, often difficult to distinguish with certainty the depth of a burn before several days have passed.⁵² At present, if an escharotic is to be used no distinction should be made as to the depth of the burn unless full destruction of the skin can be definitely ascertained.⁵³ Even then, in certain cases the application of an escharotic over deep burns of broad surfaces may be justified as a life saving measure.⁵⁴

That the production of the eschar with tannic acid is a slow process and that the eschar formed is thick, constricting and inflexible cannot be denied.⁵⁵ Several modifications have been prepared to overcome this difficulty. A stronger (20 per cent) solution of tannic acid has been claimed to produce a satisfactory eschar much more rapidly than the usual (5 to 10 per cent) concentration.⁵⁶ Bettman⁴ proposed that following the initial application of 5 per cent tannic acid the area be painted with a 10 per cent silver nitrate solution. This procedure is said to produce quickly a thin, pliable, tough eschar and it has been widely used.⁵⁷ A further modification in which the first application was a 1 per cent gentian violet solution followed by tannic acid (9 per cent) and silver nitrate (10 per cent) has been advocated.⁵⁸ The eschar formed was similar to that produced by Bettman's procedure. The gentian violet apparently served entirely as a preliminary antiseptic treatment of the burned area. Because of the rapidity with which the eschars are formed and their thinner, more flexible, nature these last two methods seem to offer advantages over 5 per cent tannic acid. Still another modification was reported by Richards.⁵⁹ He advocated an alcoholic solution of tannic acid which was said to produce a thin eschar rapidly while at the same time the alcoholic menstruum acted as an anti-

septic application. The discussion of the necessity of thorough preliminary cleansing and the principles of site and time apply⁶ for these procedures just as much as for tannic acid alone.

Tannic acid is reported to fix and destroy remaining islands of epithelium,⁶⁰ although this action has not been proved beyond dispute. It has not been demonstrated that this effect can convert a deep second degree to a third degree burn, as can infection.⁶¹

A good portion of the case built up by Wells, Humphrey and Coll⁶² for tannic acid as a liver poison when applied to burned areas rested on the observation that prior to the widespread use of this substance liver lesions had not been recognized in fatal burn cases. Boyce⁶³ contradicted this assumption; Wolff, Elkinton and Rhoads⁶⁴ and others⁶⁵ have shown that liver changes and decreased function occurred in burns per se. However, Wells and his co-workers proved by intravenous injection that tannic acid, if it reaches the liver, can produce definite destruction of liver cells. The importance of this fact merits further investigation.

ANILINE DYES

Aldrich⁶⁶ introduced the use of gentian violet and later a mixture of three dyes (gentian violet, brilliant green and acriflavine)⁸ on the theory that burn "toxemia" was due to the invasion of bacteria. Aldrich's theory of the etiology of the acute toxemia of burns has not been generally accepted, although the agents he introduced and his outline of treatment⁶⁷ retain their utility. The dyes when applied in a 1 per cent solution or as a jelly produced a tough, thin, flexible eschar which developed slowly. It was said that they did not destroy remaining islands of epithelium and that they did not cause liver damage. Since the dyes are fixative agents it is possible that they are not completely harmless to damaged epithelial cells.⁶⁸ Both preparations possess considerable bacteriostatic and bactericidal power against gram positive organisms, and the mixture of three dyes against gram negative organisms as well.⁶⁹ This property may be considered a useful adjunct in the preparation of an aseptic surface prior to the application of the escharotic, much as the gentian violet, tannic acid and silver nitrate procedure just discussed. Eschars produced by these or any other tanning agents have not been shown to have any bactericidal or bacteriostatic action. It has been often overlooked that infection can readily occur under eschars produced by these agents.⁷⁰ Thorough preliminary cleansing under rigid aseptic technic should be considered when these dyes are used, as when any of the variants of tannic acid therapy are employed.⁷¹ The advantage was claimed that local areas of infection and suppuration could be detected early under a dye eschar, since its presence was betrayed by softening.⁷² This would be helpful, but constant daily surveillance remains a necessity if the spread of infection is to be avoided.⁷² Since the application of the dyes produces an eschar, the same limitations apply to their use as to tannic acid; this applies to the face, hands, feet and on surfaces near body orifices. Extreme care should be employed when they are used on circumferential burns of the extremities or over joints. While some workers accept their use on the hands and face,⁷³ others do not. Most tanning agents can be used to build up an eschar of any desired thickness, depending on the concentration of the solution and the number of applications; the aniline dyes are no exception.⁷⁴ Disadvantages lie in the slowness with which the eschar develops and in the messiness of the treatment. Branch,⁷⁵ combining the use of gentian violet with silver nitrate, reduced the time required for eschar formation. This method would seem to compare with the tannic acid-silver nitrate technic of Bettman.

Brilliant green has been used alone in the same manner as gentian violet. The results were said to be promising, although no data were given.⁷⁶

SULFADIAZINE SPRAY

Pickrell⁷⁷ reported that a solution of sulfadiazine in 8 per cent ethanolamine when sprayed over a burned surface produced a thin, transparent, flexible eschar. The entire application required four days, and it has been stated⁷⁸ that the tan produced was so thin that second degree burns were painful and the transportation of all types of burns difficult. Never-

theless, several authors appear enthusiastic over this treatment.⁷⁹ Comments have been made on the procedure advocated by Pickrell of spraying the solution over the burned area with no preliminary cleansing.⁸⁰ The absorption of sulfadiazine has been reported to cease after the eschar is formed;⁸¹ extensive use of sulfadiazine, however, should be accompanied by the same precautionary observations as when sulfadiazine is administered orally. The method has not been reported on sufficiently for final judgment to be made. It shows promise and seems worthy of trial, although the slowness with which the eschar develops is a serious disadvantage. Preliminary cleansing should not be omitted if at all practical.⁸²

SALINE BATHS

The unpleasant results following the use of tannic acid on extensive third degree burns and on burns of the hands led to a trial of warm saline baths as a method for the treatment of burns.⁸³ Good results were reported. Sloughing of devitalized tissue and the control of infection were promoted, while the rapid preparation of granulating surfaces for grafting and the ability to maintain active movements were noted. External loss of plasma was not decreased, and the frequent changes of dressings were apt to be painful. A considerable amount of apparatus and much nursing care were required. The method will not adapt itself to many hospitals or to the handling of large numbers of patients. Transportation of such patients is not practical. Notwithstanding these difficulties, the method may have an application in selected cases, as in infected burns. Between baths the area may be sprinkled with sulfanilamide and kept moist with warm saline packs. The application of this procedure to infected and special areas such as the hands has proved valuable.⁸⁴

An alternative and similar method utilized the application of tulle gras or similar dressing and moist saline dressings after first cleansing the area and sprinkling with sulfanilamide.⁸⁵

The outer dressings were changed frequently but the tulle gras was left in place, obviating the pain attendant on a complete change of dressings. These methods were especially useful for infected or grossly contaminated burns or burns of the hands, feet, face and perineum.

OILED SILK (BUNYAN) ENVELOP

Bunyan⁵ sought a method which would aid the healing of burns by gentle but thorough cleansing and by the removal of dead tissue while avoiding irritant applications. The dressing desired should be painless and allow active and passive movements. The treatment should not aggravate burn shock but diminish or inhibit loss of body fluid, reduce absorption of toxins and disinfect without further damaging tissues.

He believed that the closest approach to this ideal involved the use of electrolytic sodium hypochlorite (in the form of "milton," a 1 per cent solution), which was said to be nontoxic, antiseptic and stimulating to growth but destructive to dead tissue. The preliminary cleansing was done with a 10 to 20 per cent solution of the original preparation. The wound was irrigated three times daily with a 5 per cent (or less) concentration. To form a painless, airtight dressing within which the frequent washings could be carried out, oiled silk envelopes were devised and fitted with inlet and outlet tubes through which the solution could be passed. It is not generally recognized that the oiled silk envelop formed a dressing analogous to an eschar, with the same effect of relieving pain, avoiding frequent changes of dressing and allowing ready transportation. The oiled silk was said not to stick to the burned area, was easy to apply and, being transparent, allowed inspection of the wound at all times. The method aided sloughing of devitalized tissue, exerted a continued cleansing action and minimized or prevented infection in every way analogous to a continuous bath with the added advantage of a sealing, sterile, painless dressing. The envelopes in reality formed a local bath. The irrigating solution employed may be isotonic solution of sodium chloride, a solution of one of the sulfonamides, or Dakin's solution instead of the solution of electrolytic sodium hypochlorite.⁸⁶ Bunyan⁵ reported that saline solution caused maceration of the tissues, which the sodium hypochlorite solution did not. Some pain may be experienced if the irrigating solution is too strong, and the tight seal may increase the

edema of the enclosed portion.⁸⁶ The method has proved useful for isolated areas such as the hands, feet and limbs and requires simple yet specialized apparatus. It is not labor saving when only 1 or 2 patients are treated but is said to reduce considerably the nursing care of a full ward. The method remains to be more adequately tested, especially for extensive burns. If the equipment is available it would seem to be a valuable means of treating deep, grossly contaminated or infected burns, especially of the hands, feet and limbs.⁸⁷ The irrigating solution may be changed at any time to meet the demands of the wound or the wishes of the surgeon.

PRESSURE DRESSINGS

The method of pressure dressings, so ably presented by Allen and Koch,¹⁰ has been termed the "physiological"⁸⁸ and "surgical"⁸⁹ method by other writers. It was devised in an effort to follow well founded surgical principles and to violate none of the physiologic factors which govern the healing of any wound. Essentially it consisted of thorough cleansing and débridement, preferably without an anesthetic, after which the wound was covered with petrolatum gauze and a pressure dressing applied to inhibit both internal and external plasma loss. Immobilization of the affected part for twelve to fourteen days was enforced. During this period the dressings were not changed without due cause. Good results have been recorded.⁹⁰ It is imperative that all who follow Koch's regimen should follow it in detail. Thorough study of the writings of Allen and Koch¹⁰ and of Siler⁹¹ is a necessity. Although the method has been criticized as impractical for handling large numbers of casualties,⁹² this point apparently remains to be settled.

Variants of the method have been used. Zeiss⁹³ reported on a revival of the paraffin dressing used widely prior to the introduction of tannic acid. His method is similar to that of Koch except that the dressing, built up with paraffin and constituting a pressure bandage,⁹⁴ is changed daily. While this frequent dressing was criticized,⁹⁵ it was pointed out that the burns on which the method was used were deep, the daily dressing was not painful, it allowed constant inspection and sloughing tissue could be trimmed away.

There has recently been advocated in England an adaptation of the Trueta and Orr closed plaster technics to burns.⁹⁶ Such immobilization was earlier used by Lohr.⁹⁷ It does not constitute a pressure bandage and, while it may be of some advantage in the late treatment of debilitated patients with burns of the extremities,⁹⁸ it has not yet proved its worth as a routine measure.

GROWTH STIMULATING PREPARATIONS

Innumerable preparations have been developed and proposed for the treatment of burns because of their claimed "growth stimulating" properties. The active ingredients comprise a large and expanding group, including such substances as cod liver oil, various vitamins and hormones, allantoin, urea, sulfhydryl bearing compounds, cell extracts and the as yet undefined "wound hormones." It is not the function of this article to discuss the extremely complex factors which govern the healing of wounds or the alleged growth stimulating properties of various agents. It should suffice to point out that wound repair is an intricate subject depending on many factors. Observations on the time of healing of wounds with any such factors uncontrolled are not conclusive. Not one of the proposed preparations has been generally accepted by those who are authorities in this field. Those interested in the subject or who desire to make growth stimulating claims for any substance should read carefully such articles as that of Young, Fisher and Young.⁹⁹ These authors point out the common error of basing claims on insignificant data without respect to the biologic variations which count so much in the healing of a wound. In certain cases, as in burns in the "indolent stage," stimulating dressings could be of value but, when healing is proceeding at the usual rate, it is questionable whether the use of such preparations is rational. The situation would seem to be analogous to the administration of vitamin C to a person already adequately supplied. Finally, no preparation, no matter how potent in growth stimulating properties, can stimulate epithelial regeneration when the full

thickness of the skin is destroyed. Such growth must occur from the edges of the wound. No dressing can substitute for early and adequate skin grafting in third degree burns.

MISCELLANEOUS

Certain highly complex preparations have been formulated for use on burns. Several writers have reported excellent results following their use when the systemic needs of the patient were met.¹⁰⁰ It is doubtful if better results were obtained in these cases than if simpler preparations had been used. The employment of irrational mixtures is at variance with the modern concept of any form of therapy and the Council on Pharmacy and Chemistry has issued many reports on the use of such mixtures.

Mercurochrome has been proposed as an antiseptic escharotic.¹⁰¹ It was said to produce quickly a thin, tough eschar and at the same time aid in the preparation of the burned area. It has one insurmountable objection: absorption from the burned area may be great. Several instances of mercury poisoning have followed its use in this manner,¹⁰² and it probably should never be employed on burns.¹⁰³

Various substances dissolved or suspended in an alcoholic menstruum have been suggested.¹⁰⁴ Whatever the character or advantages of the use of the active principle, the application of strongly alcoholic solutions to raw areas is to be condemned. The pain attendant on such use could be of a shocking nature.

A variety of ointments and oily dressings, usually containing a bacteriostatic agent, also have been proposed for use in deep burns and burns of the hands and face, always under a sterile dressing.¹⁰⁵

THE USE OF SULFONAMIDES IN BURN THERAPY

That the sulfonamides should be used in the treatment of burns was inevitable, for the ever present danger of infection made their trial necessary. Their value seems assured,¹⁰⁶ but the procedure by which they are best used has not been established. Sulfadiazine spray has already been discussed. Powders have caused mechanical difficulties (caking) and have not been ideal for sprinkling over extensive weeping wounds.¹⁰⁷ Further, the size of the raw area could in certain instances allow massive absorption.¹⁰⁸ More recently, however, there have been attempts to vary the size of the sulfonamide particles and more success in this technic may result.

Various dosage forms have been advocated. A dispersion in a water soluble jelly was proposed for use on the hands, face and genitalia and as a first aid application.¹⁴ Robson and Wallace¹⁰⁹ recommended a complex glycerin-sulfonamide paste. Heggie, Gerrard and Heggie¹¹⁰ reported a number of sulfonamide emulsions. Sulfanilamide has been incorporated into a tannic acid jelly¹¹¹ and mixed with liquid petrolatum.¹¹² Allen and his co-workers¹¹³ believed a sulfathiazole ointment using a water in oil base to be of value. They advocated its use in the pressure dressing procedure of Koch in place of petrolatum. Colebrook¹¹⁴ proposed sprinkling sulfanilamide over the burned area and covering it with petrolatum gauze and warm saline dressings. The use of dry sulfonamides as a local measure with saline baths or hot wet dressings and the "tulle gras" procedure has been reported.

Not one of these methods for local application has supplanted in full the procedures discussed elsewhere in this report. The choice depends on individual experience and preference and adaptability to the local measures used. When used locally as a powder, sulfanilamide is preferred by many,¹¹⁵ while sulfathiazole and sulfadiazine jellies and ointments have their advocates.¹¹⁶ The only one to be reported as forming an eschar is sulfadiazine.⁷⁷ Regardless of these reports, more recent observations have shown that the ideal ointment or emulsion has yet to be devised. If these drugs are used locally, especially in such wide, denuded areas as occur in burns, the same precautions must be taken as are followed when the drugs are given by mouth. The blood picture and urine output are to be followed routinely.

Some investigators have advocated the routine use of one of the sulfonamides by mouth in all burn cases.¹¹⁷ While there might seem to be some advantages accruing from this procedure, it has been criticized on the basis that nausea and

vomiting are frequent and would further add to the hemo-concentration now recognized to occur in burns.¹¹⁸ Further, these drugs may aggravate or precipitate real or incipient liver damage.¹¹⁹ If oral administration is ordered, sulfadiazine and sulfathiazole have been the drugs of choice.¹²⁰

FIRST AID

If only reddening of the skin has resulted from the burn and the superficial (first degree) nature of the lesion can be definitely ascertained, the application of a soothing ointment may be allowed.¹²¹ When blistering or tissue destruction have occurred and hospital facilities are close at hand, most authorities are agreed that no local medication other than a covering of sterile dressings should be applied or, lacking that, a clean cloth of any nature.¹²²

If the burn is extensive (which some have estimated as 20 per cent of the body surface), anti-shock treatment is imperative and should include the administration of morphine and an avoidance of everything which might cause fluid or plasma loss or exudation. If hospital admission is delayed, the first intravenous plasma (solution of crystalloid substances such as dextrose or sodium chloride may be actually harmful) should be begun if at all practical;¹²³ 500 cc. may be given without waiting for blood studies. Greasy applications are avoided by many on the grounds that they produce only moderate alleviation of pain (a function better performed by morphine) and add to the difficulties of properly cleansing the burned area.¹²⁴ Oils and greases make necessary vigorous handling and the use of fat solvents, procedures which may precipitate or increase shock. Further, the presence of grease makes difficult the formation of an eschar. On receiving an emergency call the physician may advantageously warn his informant or the victim's helpful neighbors to put nothing on the wound before his arrival and, on learning of the severity of the case, have the hospital informed that an emergency room will be urgently needed.

If the patient cannot be transferred to a hospital for several hours (twelve to twenty-four) some form of local dressing may be necessary. Such dressings should aim at preventing external loss of fluid, relieving pain and preventing further contamination. Whatever the individual preference for local applications, shock treatment is even more imperative under these conditions than if a hospital is readily available.

SUMMARY AND CONCLUSIONS

A review of the literature brings out two basic principles which serve as guides to the proper local care of a burn. First, properly applied, many of the more established local measures may give good results if the systemic care of the patient is adequate. Second, gentle cleansing and no unnecessary débridement of the burned area is essential for the successful application of any of the local methods of burn therapy. Under certain conditions, as a life saving measure or the necessity of handling large numbers of cases in a short time, the preliminary cleansing may have to be shortened. If infections occur, prolonged healing time and poor functional results may ensue.

A pronounced change in medical opinion regarding the use of tannic acid and other tanning agents has become apparent. The possibility of disastrous results following the formation of an eschar should always be kept in mind when the burn area is on the face, hands or genitalia. If escharotics are used, those producing a thin, tough, flexible eschar rapidly are preferred by some, although those producing similar eschars more slowly may possess certain advantages, which will result in their selection in many cases.

For those areas where an escharotic is contraindicated, or for infected burns, a number of variations of the saline bath are available. Of these, the continuous saline bath, the Bunyan envelop and the tulle gras dressing have their advocates. They are usually used with the local application of a bacteriostatic agent, as one of the sulfonamides, electrolytic sodium hypochlorite or Dakin's solution.

The use of the pressure dressing as advocated by Koch reveals interesting possibilities and its use has become very popular.

The use of growth stimulating agents has not been adequately studied, and much work remains to be done in this field. None have been accepted by the Council on Pharmacy and Chemistry.

The widespread use of the sulfonamides, both locally and orally, marks a definite trend in the treatment of burns; they offer promise for the prevention and treatment of infection. However, prolonged use of these agents may cause sensitization. This is a danger that should be kept in mind by all physicians. In concluding this discussion it is well to point out that no method which has been presented to date makes the proper care of burns anything but a tedious and time consuming procedure, the results of which are frequently disappointing. The alternatives are clear: high mortality and morbidity, loss of function and disfigurement for the patient. The responsibility of any individual or group attending a burned patient is obvious. Further, one of the commonest errors in the treatment of burns is underestimating the extent and seriousness. All burns should be regarded as potentially serious wounds.

In no instance should local treatment replace the prevention and treatment of shock, prophylaxis against tetanus and possibly gas bacillus infections and proper surgical procedures when indicated.

The comparative evaluation of the various treatments proposed for burns would be made more accurate if proper records always were kept and published. Boyce⁹³ has stressed the inadequacy of most records. Harkins⁶ has posed four pertinent problems: 1. What is the longest possible interval after a burn that tanning therapy can be applied under optimum conditions? 2. What percentage of plasma loss does tanning prevent? 3. Assuming that the main purpose of the tanning method is to conserve plasma, if plenty of plasma is available, is tanning still advisable? 4. Is tannic acid toxic? At least one other may be proposed:¹²⁵ What is the best means of hastening the sloughing stage of deep burns, promote maximum healing and still prevent infection? Similar questions proposed by many authorities emphasize that more critical observations, well documented and controlled, are needed. In reporting results care should be taken to record the site, extent and depth of the burn, the incidence, degree and location of infection, the physiologic state of the patient as indicated by blood and urine studies and kidney and liver function tests, the nutritional state of the patient and his age. The effectiveness of newer antiseptic agents and their effect on the patient should be determined. Statistical evaluation would be desirable, and the utilization of proper controls should not be forgotten in investigational work.

ADDENDUM

Since the Councils' report was prepared, many other papers have appeared in print. Some of them represent much work and critical evaluation. For example, Drs. Roy D. McClure and Conrad R. Lam have offered a study of a survey representing the burns occurring in a group of approximately 250,000 industrial workers. After examining the data for tannic acid, greasy ointments, vitamin ointments and sulfonamide ointments they concluded that there were an unreasonable number of different preparations being used for the treatment of minor burns in industrial plants and that the average minor industrial burn is apt to be healed in less than a week. They suggested washing with white soap and water, no breaking of blisters or other debriding, a cover of fine mesh gauze impregnated with petrolatum or 5 per cent boric acid ointment and a firm dressing of sufficient size to keep away dirt.

More recently, there appeared in *THE JOURNAL* (June 24, July 1, 1944) a symposium of seven papers published under the auspices of the Section on Surgery, General and Abdominal. The authors discussed the problem of thermal burns, the chemical aspects of burn treatment, the general care of the burned patient, the present status of the tannic acid method in the treatment of burns, surgical cleanliness, compression and rest as primary surgical principles in the treatment of burns, the early plastic care of deep burns and the late plastic care of burn scars and deformities.

After a consideration of the other papers made available more recently, the Councils declared there was no need to change the report. In fact, most of the more critical presentations tend to support the principles set forth in this joint statement.

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SATURDAY, AUGUST 5, 1944

ESSENTIALITY OF AMINO ACIDS

Not long after the demonstration, on the basis of chemical analysis, that some proteins fail to provide certain amino acids, nutritional studies with experimental animals established that growth, maintenance and physiologic well being cannot be attained unless certain amino acids are available to the animal. Indeed, the work of Hopkins and of Osborne and Mendel in this connection served to turn attention from the importance of the quantity of protein in the diet to a consideration of the biologic significance of the quality of the food proteins as regards their amino acid content. The brilliant work of Rose and his collaborators at the University of Illinois has served not only to expand the number of amino acids recognized as indispensable for adequate nutrition but also to clarify the general concept of the nutritional significance of amino acids. At present it is generally accepted that there are ten amino acids essential for the growth of the young white rat, the laboratory test animal most widely used for this type of study, and satisfactory growth over a limited span of the early life of these animals has been observed when these ten amino acids represent the main source of nitrogen in the experimental diet. However, Lewis¹ has cautioned lest the attitude prevail that protein nutrition in general can henceforth be satisfied with only the recognized essential amino acids or that the rest of the protein molecule is nutritionally of little importance.

On the basis of recent investigation, certain factors appear to be important in influencing the essentiality of the amino acids. The age of the experimental animal is one of these. Whereas arginine is needed preformed in the diet of a young rat, Scull and Rosé² have shown that the adult animal of this species can synthesize this amino acid rapidly enough for maintenance needs. Again, on the basis of balance experiments it

has been indicated³ that fewer of the "essential" amino acids are needed for maintenance of adults than for growth of young rats. There arises the question as to whether different species of animals have different needs for amino acid. It has been shown⁴ that amino-acetic acid is required by the chick, whereas the mammal appears to be able to synthesize this amino acid with ease. Furthermore, using the maintenance of nitrogen balance as the criterion of indispensability, Rose and his associates⁵ have demonstrated that histidine, essential for growth of rats, is not needed by human subjects.

Another factor which must be considered in the metabolism of substances administered by mouth is the activity of intestinal bacteria. A recent observation by Martin⁶ may have an important bearing on the philosophy of essentiality of amino acids. He reported that young rats given a complete diet containing all the essential amino acids failed to grow if succinylsulfathiazole was added to the diet. Having taken into consideration the vitamins known to be synthesized by the bacteria in the intestine, the suggestion is made that a significant part of the nonessential amino acids is provided to the host organism by synthetic action of the intestinal bacteria; once these are rendered inactive by the sulfonamide drug, the real need of the host for preformed amino acids is disclosed. Although further work in this field is needed, it is already obvious that the concept of indispensability of any dietary constituent can be held only under well defined conditions. This view applies likewise in the field of therapeutics and so merits renewed attention in medicine.

TERMINOLOGY OF CORONARY DISEASE

Master¹ believes that the adoption of the term "coronary failure" to designate acute coronary seizures would lead to ambiguity and confusion. He would retain both terms "coronary occlusion" and "coronary insufficiency," since each represents an entity more or less readily distinguishable by the mode of onset, the symptoms and the characteristic electrocardiographic alteration. Coronary artery occlusion means sudden, complete obstruction of a coronary artery characterized clinically by an attack of severe and prolonged substernal pain, shock, impairment of the first heart sound, gallop rhythm, occasionally a pericardial rub, a fall in blood pressure, fever, leukocytosis and a rapid sedimentation rate. Acute coronary insufficiency indicates necrosis or infarction of the myocardium without com-

3. Burroughs, E. W.; Burroughs, H. S., and Mitchell, H. H.: *J. Nutrition* 19: 363, 1940.
4. Almquist, H. J.: *Fed. Proc.* 1: 269, 1942.
5. Rose, W. C.; Hanes, W. J.; Johnson, J. E., and Warner, D. T.: *J. Biol. Chem.* 148: 457, 1943.
6. Martin, G. J.: *Proc. Soc. Exper. Biol. & Med.* 55: 182, 1944.
1. Master, Arthur M.; Jaffe, Harry L.; Dack, Simon, and Crishman, Arthur: Coronary Occlusion, Coronary Insufficiency and Angina Pectoris: A Clinical and Postmortem Study, *Am. Heart J.* 27: 803 (June) 1944.

1. Lewis, H. B.: Proteins in Nutrition, *J. A. M. A.* 120: 198 (Sept. 19) 1942.

2. Scull, C. W., and Rosé, W. C.: *J. Biol. Chem.* 89: 109, 1930.

plete closure of a coronary artery. Pain and necrosis or infarction of the myocardium may be produced by severe or prolonged diminution in the coronary flow in the absence of coronary occlusion.

The major difference between coronary occlusion and coronary insufficiency is in the mode of onset. Coronary occlusion begins independently of outside influences such as effort and excitement; actually it is most common during rest or sleep. Coronary insufficiency, on the contrary, is due to a sudden inadequacy of coronary blood flow produced by a number of factors, such as unusual effort, emotion, acute hemorrhage, shock, tachycardia, heart failure and surgical operations. If either increased cardiac work or diminished coronary blood flow develops in the presence of coronary artery disease, the myocardium may become ischemic; if the precipitating factor persists, necrosis of the heart muscle may ensue. Unlike coronary occlusion, pain may be a minor symptom in coronary insufficiency and sometimes is obscured entirely by the condition causing the ischemia, for example, shock or surgical operation. The electrocardiogram is considered characteristic of acute coronary occlusion when elevation of the RS-T segment and a deep Q wave are present in one or more leads, with progressive change from RS-T elevation to T wave inversion in serial records. In acute coronary insufficiency the typical electrocardiographic changes consist of RS-T depression and T wave inversion in two or more leads. RS-T elevation and deep Q waves are absent. Unlike that in coronary occlusion, the electrocardiogram returns to its original configuration in several days or weeks.

The concepts that have been described were evaluated in a clinical, electrocardiographic and postmortem study of 100 consecutive cases in which the diagnosis of coronary occlusion had been contemplated. In 49 cases the electrocardiographic pattern was considered characteristic of coronary occlusion, and the latter was found post mortem in 47 of these. In addition, the electrocardiogram clearly indicated whether the infarction was anterior or posterior. Not every attack of coronary occlusion results in typical electrocardiographic alteration; this is true chiefly in multiple fatal attacks. When the electrocardiogram presents RS-T elevation and Q waves, the diagnosis of coronary occlusion is practically certain. Progressive RS-T depression or T wave inversion were present in 5 cases, and the necropsy revealed in all 5 cases coronary sclerosis without occlusion. Thus the authors were apparently able to differentiate coronary occlusion from coronary insufficiency in 95 per cent of their cases on clinical and electrocardiographic data.

Masters and his collaborators feel that the term "angina pectoris" should be retained because of its classic clinical picture. The syndrome is represented by the typical substernal pain and its radiation, its rela-

tion to effort, excitement, cold and eating and its relief by rest and glyceryl trinitrate. The term connotes one type of coronary insufficiency. It differs from the more severe forms of coronary insufficiency in that anatomic alterations do not occur in the cardiac muscle; the attack of pain is usually of short duration, shock is absent, the heart sounds and blood pressure are not significantly altered, and pericardial rub and heart failure do not appear. Fever, leukocytosis and an increase in the sedimentation rate are absent. Immediately after the attack the patient returns to his previous condition, that is, he may feel entirely well. The electrocardiogram is usually normal, but the changes characteristic of coronary insufficiency may appear transiently during the attack.

Current Comment

QUINACRINE (ATABRINE) IS SATISFACTORY IN MALARIA CONTROL

An official report from the Board for the Coordination of Malarial Studies on the use of atabrine in the prevention and treatment of malaria appears on page 977. It answers the questions which have been in the minds of many physicians relative to the comparative advantages and disadvantages of quinine, totaquine and quinacrine (atabrine). The postwar world, with the knowledge now available about this drug and on methods of malaria prevention, should be able to eliminate malaria from every civilized nation. That would be, indeed, a blessing derived from the most destructive and costly war the world has ever known.

EFFECTS OF VARIATIONS IN INTRACRANIAL PRESSURE

Experiments on variations in intracranial pressure reported by Kahn¹ were begun with the intention of studying the effect of experimentally produced cerebral edema on consciousness in the dog. Distilled water was perfused into the anatomic central end of the common carotid artery, and observations were made as to whether or not this would render the animals comatose. Records with the kymograph were taken simultaneously of the respiration, the general carotid blood pressure, the cerebrospinal fluid pressure in the cisterna magna and the pressure in the brain tissue. The assumption that the pressure in the lateral ventricles was being accurately recorded by measurement of the cisternal pressure was later demonstrated to be fallacious, so that the intraventricular pressure was simultaneously recorded thereafter with a mercury manometer. Kahn's studies indicate that the respiratory and circulatory embarrassment associated with high levels of intraventricular and intracerebral pressure may be relieved by ventricular drainage, which lowers both the intra-

1. Kahn, Alfred J.: Effects of Variations in Intracranial Pressure, *Arch. Neurol. & Psychiat.* 51: 508 (June) 1944.

ventricular and the intracerebral pressure. In experiments on otherwise normal animals in which the intraventricular pressure was abruptly raised to levels between 60 and 10 mm. of mercury below the diastolic blood pressure, accompanied by measures designed to keep the cisternal pressure low, the respiration became directly affected; it became depressed and inhibited more quickly in general at the higher pressures than at the lower pressures employed. The ill effects of increased intraventricular pressure (with low cisternal pressure) appeared to be due to the herniation of the medulla into the foramen magnum. This herniation was observed in dogs as a result of elevation of the intraventricular pressure while the cisterna magna was opened to the exterior. Ventricular drainage, together with artificial respiration and administration of isotonic solution of three chlorides infused into the central end of the common carotid artery, was efficacious in restoring respiration and increasing the blood pressure after severe medullary trauma in the water perfusion experiments in dogs. The fact that the experimentally produced state of high intraventricular and low cisternal pressure gives rise to dire respiratory and circulatory effects, which disappear when the disparity between the two pressures is reduced, appears to be clinically significant. Serious danger is involved in lumbar puncture when the possibility of a block between the ventricular reservoir and the subdural fluid spaces exists. Kahn believes that use of lumbar puncture as a means of relief of intracranial tension is contraindicated because of this danger when there is internal hydrocephalus subsequent to severe cranial trauma. Ventricular drainage is indicated and should be done as quickly as possible because of the damage to the medullary centers by prolonged tension.

INFLUENCE OF TEMPERATURE CHANGE ON ANGINA PECTORIS

Patients with angina pectoris commonly experience an increased frequency of attacks during cold weather. Now this response has been used as an aid in diagnosis and also for investigation of certain aspects of the disease. Patients were placed in a cold room, thereby precipitating an attack. In a recent investigation by Freedberg and his colleagues¹ 22 patients with angina pectoris due to coronary arteriosclerosis were studied. Local application of ice to the hand during exercise reduces the exercise tolerance of patients with angina pectoris and results in the precipitation of pain even when the patient is in a warm room. This observation parallels the experience of many patients with angina pectoris who, although warmly clothed and with only the face exposed, nevertheless have more attacks of pain in winter than in summer. The effect of local application of cold was extremely rapid; it could be demonstrated in ten seconds, reached a maximum in thirty to forty seconds after application and could not be

prevented by obliteration of the venous return from the area to which the cold was applied. The prior application of heat or the administration of nitroglycerin nullified this effect, however. The concept that coronary artery vasomotor changes, probably reflex in origin, exert a contributory influence in the precipitation of attacks of angina pectoris and that heat acts as a coronary vasodilator and cold as a vasoconstrictor or to prevent vasodilatation is supported by these results. The prophylactic use of heat enables many patients with angina pectoris to perform considerably more work in a cold atmosphere and suggests that the local application of heat may be of value in the prevention of attacks in daily life under certain circumstances. The local application of ice was reported to be a valuable clinical substitute for a cold room in precipitating attacks of angina pectoris for diagnostic or other investigative purposes.

ASCORBIC ACID LOSS IN MINCED SALADS

Recent studies² have shown that mincing speeds the rate of disappearance of ascorbic acid from fresh fruits and vegetables; enzymes, metallic catalysts and fine division apparently favor oxidation. In military service minced salads are often prepared several hours before serving, so that methods of preventing rapid loss of this essential vitamin are of strategic importance. McCay and his associates² of the National Naval Medical Center, Bethesda, Md., therefore undertook a study of the effects of variations in routinely used technics for mincing. Cabbage, cucumbers, tomatoes, lettuce and other salad vegetables were sliced or minced by three different technics. The first samples were thinly sliced with a plastic knife. Duplicate samples were similarly prepared with a steel knife. A third group of samples was put through the standard metallic "Buffalo chopper." Each sample of minced green peppers, for example, had an initial vitamin C content of 130 mg. per hundred grams. In the plastic sliced samples this fell to 87 mg. per hundred grams by the end of two hours, a 33 per cent loss in vitamin C. The rate of loss was twice as fast in control samples sliced with a steel knife, the ascorbic acid content falling to 53 mg. per hundred grams. The loss was even more rapid in samples minced in the metallic chopper, the two hour assay being only 31 mg. per hundred grams, a 75 per cent loss. Similar differences in the rate of disappearance of vitamin C were noted with all other vegetables. With radishes, for example, the two hour loss was 90 per cent of the initial ascorbic acid content when this vegetable was minced in the metallic chopper. The loss was but 30 per cent if it was sliced with the plastic knife. To minimize vitamin loss in military service, McCay believes that some form of plastic chopper should be devised and substituted for the present metallic grinder, and that wherever possible sliced or minced salads should not be prepared until just before serving.

1. Freedberg, A. Stone; Spiegl, Erwin D., and Riseman, Joseph E. F.: Effect of External Heat and Cold on Patients with Angina Pectoris: Evidence for the Existence of a Reflex Factor, *Am. Heart J.* 27: 611 (May) 1944.

1. King, C. G.: The Physiology of Vitamin C, *J. A. M. A.* 111: 1098 (Sept. 17) 1938.
2. McCay, C. M.; Pijoan, Michel, and Taubken, H. R.: *Science* 99: 454 (June 2) 1944.

MEDICINE AND THE WAR

QUINACRINE HYDROCHLORIDE (ATABRINE) FOR MALARIA

On May 31, 1944 the Board for the Coordination of Malarial Studies adopted the following resolution concerning the relative value to the armed forces of quinacrine hydrochloride, U. S. P. (atabrine), quinine and totaquine, U. S. P.

On the basis of controlled quantitative studies in civilian, Army and Navy establishments, the evidence at hand justifies the following statement:

1. *In the Suppressive Therapy.*—Quinacrine (atabrine) has proved to have all the antimalarial properties ascribed to quinine in the suppression of malaria during and subsequent to exposure to infected mosquitoes. Effective suppression can be accomplished over long periods of time by proper use of quinacrine. Available evidence indicates that this end may be achieved without danger to the individual.

Earlier reports indicated a significant incidence of gastrointestinal disturbances in certain groups of men receiving suppressive quinacrine therapy. For practical purposes these adverse reactions can be avoided by proper administration of the drug. Quinine, in doses adequate to assure suppression of malaria equivalent to that produced by quinacrine in the dosage currently used by the armed forces, is frequently attended by symptoms of cinchonism.

Quinacrine has been demonstrated to prevent consistently the development of falciparum malaria when the drug is administered in proper dosage before, during and after exposure.

2. *In the Therapy of the Acute Attack.*—Experience in the past two years has demonstrated conclusively that quinacrine (atabrine) when properly administered is fully as effective as quinine in the termination of the acute attack and is safer than quinine. The intramuscular injection of quinacrine is highly effective in securing a rapid therapeutic response. Evidence is not at hand to decide on the relative merits of quinacrine administered intramuscularly as compared with quinine administered intravenously in patients with fulminating cerebral malaria.

3. *In the Therapy of Vivax Malaria.*—Neither quinacrine nor quinine can be relied on to prevent relapses in vivax malaria following the discontinuation of therapy, although the interval between attacks is significantly longer following quinacrine than following quinine in the dosage schedules currently used by the armed forces.

4. *In the Therapy of Falciparum Malaria.*—There is convincing evidence that quinacrine not only suppresses the clinical symptoms of falciparum malaria but also cures this malignant form. The evidence of a similar curative effect of quinine is not conclusive.

5. *Totaquine (U. S. P.).*—Because of its content of crystallizable cinchona alkaloids, totaquine (U. S. P.) has activity which approximates that of quinine and therefore can be used as a substitute for quinine when given orally. The antimalarial activity of totaquine (U. S. P.) is dependent on the amount of crystallizable alkaloids in the preparation rather than on the specific amount of each individual alkaloid. Gastrointestinal disturbances occur more frequently following the use of the present totaquine (U. S. P.) than they do following the use of quinine or quinacrine.

On the basis of the foregoing statement, it is resolved:

1. That no advantage, and possible disadvantage, would accrue to the armed forces were quinine or totaquine to replace quinacrine for the routine suppression and treatment of malaria.

2. That the large scale production of quinine or totaquine is not now considered a matter of importance for the management of malaria among Army and Navy personnel. It is possible that a supply of totaquine in excess of the present stockpiles may be required for therapy in civilian populations temporarily under the jurisdiction of the armed forces in occupied territory where immediate dissemination of information concerning the use of quinacrine (atabrine) is not practicable. In this connection it should be kept in mind that after the war the overall need for all established antimalarial drugs will continue to be great.

BOARD FOR THE COORDINATION OF MALARIAL STUDIES,
NATIONAL RESEARCH COUNCIL: R. F. Loeb, Chairman; W. M. Clark; R. G. Coatsy, U. S. P. H. S.; L. T. Coggeshall, Comdr. (MC), U.S.N.R.; F. R. Dieuaide, Lieut. Col., M. C., A. U. S.; A. R. Dochez, O. S. R. D.; E. G. Hakansson, Capt. (MC), U.S.N.; E. K. Marshall Jr.; O. R. McCoy, Major M. C., A. U. S.; F. T. Norris, Lieut. Comdr. (MC), U.S.N.; W. H. Sebrell, U. S. P. H. S.; J. A. Shannon, and G. A. Carden Jr., Secretary.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

UNITED STATES PUBLIC HEALTH SERVICE NEEDS PHYSICIANS

The U. S. Public Health Service needs 322 physicians immediately. About 170 of these are needed for assignment to duty in the War Shipping Administration, for foreign shore duty with the UNRRA and for sea duty and foreign shore duty in the U. S. Coast Guard. One hundred and fifty-two physicians are needed for duties in Hospital Division, Foreign Quarantine, Tuberculosis Control, Venereal Disease Control and other states relations work. The U. S. Public Health Service has asked that state chairmen be informed of these needs in order that available physicians may apply for reserve commissions.

INCREASE IN AREAS IN NEED OF PHYSICIANS

The first three months of 1944 show an increasing number of areas in need of physicians reported by state chairmen to the central office of the Procurement and Assignment Service. The rise in areas reported may reflect an increase in medical care needs or may be the result of improvement in reporting by state chairmen. Shortage reports are now being submitted

more regularly than in the past. It will not be possible to make comparisons and draw definite conclusions until complete returns are received each month from each state.

The record of medical care need for January is based on 41 current reports, on 47 for February and on 53 for March. The number of communities in need of physicians rose from 170 in January to 185 in February and to 199 in March. The number of physicians needed throughout the nation according to state chairmen was 225 in January and 232 in February and in March. Consistently the need has been for general practitioners, only 11 per cent of each month's total need being for specialists.

SANITARY CORPS OFFICERS NEEDED

A recent announcement by the Surgeon General of the Army indicates that there is need for a limited number of sanitary engineers, bacteriologists, biochemists and entomologists as commissioned officers. Eligible sanitary engineers will be cleared through the Procurement and Assignment Service with procedures similar to those in effect for the processing of physicians. Qualified specialists in these fields will receive ranks commensurate with their experience and ability.

ARMY

MALARIA IN THE ARMY

In the present war casualties from malaria have been an important factor influencing military operations in certain theaters of action. In overseas areas the total number of deaths directly attributable to malaria in 1943 was under 100. Patients who died usually had fever for only two or three days. The rates of the disease in highly malarious theaters are now but one fourth to one third of that which existed early in the war. Quinacrine has proved equal and in some ways superior to quinine for suppressing symptoms among troops operating under conditions where complete protection from malaria carrying mosquitoes is not possible. Individual preventive measures have been improved by the development of highly effective mosquito repellents and aerosol sprays. In this country as part of the army program an enormous mosquito control campaign was organized and carried out in 1941 at a cost of almost \$2,000,000. The malaria rate during that year not only failed to rise in the face of enormous increments to the military establishments but actually dropped to the low figure of 1.7 per thousand. In 1942, after the campaign had been intensified, the malaria rate for troops in this country decreased to 0.6 per thousand and in 1943 dropped still lower to 0.2 per thousand. The mosquito control program has effectively prevented malaria from becoming a problem among troops stationed in the United States.

AUSTRALIAN FLAG GIVEN AMERICAN
ARMY NURSES

An Australian flag has been donated to the Army Nurse Corps by a nurses' welfare association in Tasmania in appreciation of the work of American nurses in Australia. The flag was presented as a "link of friendship" by the Armed Services Nurses Welfare Association of Tasmania. The association requested that the flag be presented by the Australian delegate to the International Labor Conference in Philadelphia, and Col. Florence A. Blanchfield, superintendent of the Army Nurse Corps, designated Major Edna D. Umbach, principal chief nurse of the Valley Forge General Hospital, Phoenixville, Pa., to receive it. In a letter explaining the purpose of the gift, Miss Edith Ransom, state president of the Tasmanian nurse group, said its members wished to show "their appreciation of the work of the American nursing services in Australia."

BRONX AREA STATION HOSPITAL

The Bronx Area Station Hospital, New York, formerly the Lebanon Hospital, was formally dedicated on June 7. The hospital was taken over by the Army about a year ago and was originally intended for the use of women in the military services. The hospital's purpose has now been altered to care for transient army personnel within the area including upper Manhattan, the Bronx and Putnam and Westchester counties, west of the Bronx River and Taconic State Parkway. The hospital is an eleven story structure with a capacity of 200 beds. The staff includes eleven medical officers, six dental officers, three medical administrative officers, sixteen nurses, fifteen nurse's aides and a Red Cross staff of eighteen as well as Medical Department enlisted men and civilian employees.

ARMY MEDICAL LIBRARY STAFF CHANGE

A recent army regulation announced that the Army Medical Library, often referred to as the Surgeon General's Library, shall be administered by an officer of the Medical Corps with the title of Director. The Director is charged with the general administration, with upholding policies laid down by the Surgeon General, and representing the library before the public. A principal assistant to the Director with the title of Librarian may be either a commissioned officer or a civilian. "The Librarian shall possess a wide knowledge of and experience in library methods. Under the Director, he is charged with the coordination and technical operation of all elements of the Library."

ARMY AWARDS AND COMMENDATIONS

Captain Martin M. May

The Soldier's Medal was recently awarded to Capt. Martin M. May, formerly of Marion, Ill., who is now serving in the Army Medical Corps in Italy. The citation accompanying the award read "for heroism not involved in conflict with the enemy. On 7 June 1944 a fire of unknown origin started in the engineer combat battalion supply dump. The fire spread quickly through the inflammable materials in storage. Most of the men were trying to extinguish the conflagration when a tremendous explosion threw them to the ground, sending sheets of flame and smoke and bits of torn metal throughout the area. Twenty-four men and three officers were killed by the blast. As the smoke cleared away, Captain May saw Technician Fourth Grade Weibrich, severely burned, internally injured and suffering from shock, attempting to crawl out of the flaming area. With complete disregard for his own life Captain May left his place of safety and with the help of an enlisted man ran into the flaming inferno and carried Weibrich out. Although there were still small explosions, and knowing that the fire might engulf the wounded man, Captain May courageously and heroically risked his own life in the face of known danger to rescue Technician Weibrich. Captain May then proceeded to organize his medical aid men and some volunteers to treat the casualties. He personally administered morphine and blood plasma to the most severely wounded. Unquestionably Captain May's prompt calculated actions saved the sight and the lives of several of the men. His heroic conduct is a credit to himself and to the Medical Corps." Dr. May graduated from St. Louis University School of Medicine in 1938 and entered the service Oct. 7, 1942.

Major Horace B. Dozier

Major Horace B. Dozier was presented with the Legion of Merit Award recently for exceptionally meritorious service in the North African Campaign. The citation read "For exceptionally meritorious conduct in the performance of outstanding services as hospitalization and evacuation officer from 21 March 1943 to 21 July 1943. During this period the base section supported the operation of the American forces in the Tunisian campaign. During the final phases of this campaign Major Dozier actively participated in the forward area by coordinating and supervising the evacuation of battle casualties. He assisted in the preparation and execution of the entire hospitalization and evacuation program. This program was so efficiently planned and executed that the evacuation of patients was effected with an absolute minimum of delay, even during the final phases when movements of large units were made with great rapidity, evacuation lines were long and communication facilities almost nonexistent. The efficient and capable manner in which Dozier carried on his duties played a great part in the excellent medical care which was provided for battle casualties." Dr. Dozier graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1939 and entered the service June 29, 1941.

Colonel Edward J. Kendricks

The Legion of Merit was awarded by the War Department to Col. Edward J. Kendricks, a regular army officer since Oct. 1, 1930, "for exceptionally meritorious conduct in the performance of outstanding service from September 1942 to October 1943." Dr. Kendricks graduated from Northwestern University Medical School, Chicago, in 1922.

Captain Seymour L. Osher

Capt. Seymour L. Osher, formerly of Maywood, Ill., was recently awarded the Bronze Star for heroic action in Italy. The award was for remaining at his post and performing surgery despite the fall of flak throughout the hospital. Dr. Osher graduated from the University of Illinois College of Medicine, Chicago, in 1940 and entered the service Feb. 20, 1942.

ORGANIZATION SECTION

WASHINGTON LETTER

(From a Special Correspondent)

July 31, 1944.

Another Aspect of Medical Manpower Shortage

Another aspect of the nation's critical shortage of medical manpower is underscored in figures presented to a new national venereal disease committee appointed recently by Paul V. McNutt, Federal Security Administrator, to "plan new programs in the fight against venereal diseases and their spread." Although progress has been made in controlling incidence of venereal diseases in the Army and Navy "to the lowest point in history," there has been a slight current increase, from which the following factors were elicited: (1) increased reporting of infections with the advent of penicillin and the shorter period required for treatment, (2) shortage of trained venereal disease men in this country after the departure of more trained men for overseas duty and (3) the possibility of laxity induced by over-reliance on new methods of treatment.

Col. Thomas H. Sternberg, representing the Army, informed the committee of an upward trend in army venereal disease rates in continental United States to 30 per thousand as compared with the average rate of 26 per thousand over the past year. Comdr. W. H. Schwartz said that the navy rate for continental Europe showed a slight increase in the same period. Despite these trends, both the Army and the Navy reported substantial decreases in days lost because of venereal disease, attributed to the use of penicillin, reducing the time required for treatment.

The new committee is composed of fifteen, including representatives of private organizations, the Army and Navy, the Public Health Service and the Social Protection Division of the Federal Security Agency. The committee will seek greater community and national cooperation in venereal disease control with a view to maintaining gains made into the demobilization period.

The committee hopes to augment for the postwar period these cooperative efforts. It has been established that no man will return to civilian life from the armed forces with a venereal infection that has not been cured or rendered noninfectious. It is believed that the coming period is a strategic time to eradicate the venereal scourge, but there is danger of a psychologic letdown.

Members of the National Venereal Disease Committee are the Rt. Rev. Harold J. Carroll, assistant general secretary, National Catholic Welfare Conference; Dr. Belmont Farley, National Education Association, 1201 16th Street N.W., Washington, D. C.; Dr. T. K. Lawless, dermatologist and consultant, Providence Hospital, Chicago; Mrs. Mabel K. Staupers, executive secretary, National Association of Colored Graduate Nurses, 1790 Broadway, New York; John A. Sengstacks, president, Negro Publishers' Association, managing editor, Chicago Defender, Chicago; Bishop R. R. Wright Jr., executive director, Fraternal Council of Negro Churches, Wilberforce, Ohio; Dr. Mordecai Johnson, president, Howard University, Washington, D. C.; Dr. Heller, assistant surgeon, Division of Venereal Diseases, U. S. Public Health Service, Bethesda, Md.; Dr. William F. Snow, American Social Hygiene Association, New York; Dr. Alphonse M. Schwitalla S. J., St. Louis University School of Medicine; Colonel Sternberg, U. S. Army; Commander Schwartz, U. S. Navy; Felix J. Underwood, Mississippi State Board of Health, Jackson, Miss.; Ralph McGill, editor, Atlanta Constitution, Atlanta, Ga.; Watson B. Miller,

assistant administrator, FSA; Rev. Roswell Barnes, associate general secretary, Federal Council of the Churches of Christ in America, New York; Mark A. McCloskey, director, Office of Community War Services and Eliot Ness, director, Social Protection Division, CWS.

Egyptian Minister of Health Touring the United States

Since the Allied victory at El Alemein signaled a victorious trend in the war, Egypt has been able to give some thought to postwar problems. So declares His Excellency, Dr. W. A. W. Wakil, Egyptian minister of health, recently a delegate at the monetary conference, who after a brilliant social reception in the capital has been touring the United States in connection with his own comprehensive health program for his country. Scientifically modern in his views, Dr. Wakil has mapped out a progressive program for Egypt, whose health problem, largely centered in the villages of rural areas, offers some interesting comparisons with this country. His trip here is nonpolitical and of a purely scientific and medical nature, and he is studying health, sanitation and hygiene methods, especially in our rural areas where the climatic conditions are nearest those in Egypt. Indicative of his outlook is his warning, well publicized in the daily press, that air traffic has increased the spread of communicable diseases. He advocates an international health conference to be held within two or three months to set up prevention measures to combat transport of diseased persons, bacteria and insects by airplane. As an illustration, he says the Gambia mosquito was brought to Egypt for the first time via plane and cases of malaria have resulted. In this connection Dr. Wakil proposes to study quarantine methods in the aviation center at Miami.

Basic factor in the overall health problem in Egypt, he says, is an exceptionally high birth rate. The rapid growth of population, unaccompanied by a parallel increase of national resources, is affecting public health through increased poverty, more overcrowding and more nuisances both in villages and in the poorer quarters of cities. The majority of Egyptians are employed in agriculture, with only some 700,000 persons, about 4 per cent of the population, employed in medium and large factories.

Dr. Wakil lists, as the principal health problems of Egypt, defective rural sanitation and welfare, paucity of pure water supplies in villages and high incidence of Bilharzia and Ancylostoma, high child mortality, incomplete campaigns against tuberculosis, venereal disease and leprosy, deficient hospitalization of the sick and defective urban sanitation. To meet them he advocates a five or ten year plan. He offers the following postwar health projects to deal with these problems:

1. Rural health reform: A. Generalization of pure water supplies. B. Generalization of rural health centers (for every 15,000). C. Eradication of Bilharzia and Ancylostoma. D. Village reconstruction by (a) radical methods, e. g. (1) construction of new villages, or (2) gradual village planning and sanitation. E. Abolition of remaining ponds and marshes.

2. Urban health reform: A. Generalization of drainage schemes. B. Generalization of urban health centers (for every 30,000).

3. Miscellaneous: A. Provision of more facilities for general and special hospitalization and treatment of the sick. B. Completion of the antituberculosis scheme. C. Completion of the antileprosy scheme. D. Introduction of more decentralization in the health administration. E. Provision of more medical and auxiliary staff.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Norman Baker Released from Prison.—Norman Baker, former operator of alleged "cancer cure" hospitals at Muscatine, Iowa, and Eureka Springs, Ark., was to be released from the Leavenworth Federal Penitentiary July 19, newspapers reported. Baker was convicted at Little Rock in January 1940 on a charge of using the mails to defraud in the advertisement of a cancer treatment and was sentenced to four years in prison and fined \$4,000. He began serving the sentence in March 1941.

COLORADO

Personal.—Dr. Guy E. Calonge has been named a member of the La Junta School Board.—Dr. and Mrs. Thomas J. Jones, Hooper, observed their fiftieth wedding anniversary, June 6.

Rheumatic Fever Control Program.—The public policy committee of the Colorado State Medical Society recently rejected a proposed plan for rheumatic fever control in metropolitan Denver submitted by the state board of health and offered, instead, an alternate plan. Under the state board's plan the source of funds to finance the project would be an allotment of \$20,000 by the U. S. Children's Bureau, a grant of \$10,000 from the Denver War Chest for a diagnostic clinic, and available resources of existing hospitals wishing to participate. Administration would be by the state board and the participating hospital, the diagnostic clinic to be established at hospitals approved by the Medical Society of the City and County of Denver. Certain regulations were stipulated for basic professional services, plans for providing care, transportation facilities, education and mental hygiene, the last to be covered by the Child Guidance Clinic of the Colorado Psychopathic Hospital. The public policy committee of the state medical society submitted the following recommendations as signposts of policy for setting up the program, believing they will assist in avoiding the dangers of "bureaucratic sovietized medicine" and lead to a "noncompulsive, democratic program of sane public health":

1. The development of a statewide, rather than a local, cooperative rheumatic fever control program to be financed by such federal funds as are now available from the United States Children's Bureau and by any other funds available through appropriations from the Colorado state legislature or by Community Chest grants or private contributions.

2. The strict administration and supervision of this program by the Colorado State Board of Health.

3. The diagnostic and treatment aspects of the program to be carried out entirely and exclusively in private hospitals accredited by the American College of Surgeons and in convalescent homes approved by the Colorado State Board of Health.

4. The actual clinical work of the program, in both its diagnostic and its therapeutic aspects, to be performed entirely by physicians in private practice working on a part time basis and at a rate of compensation comparable to that prevailing in their various specialties in their particular communities.

5. The physicians employed to carry out the clinical part of the program to be their various fields of medical practice (pediatric surgery, psychiatry, neurology, etc.) by their specialty boards. However, in those rural districts where specialists are not readily available it is recommended that the state board of health be permitted to waive specialty requirements.

6. The nursing care to be provided by the nursing staffs of the participating hospitals—by school nurses—by nurses from accredited visiting nurses' associations and by the division of public health nursing of the Colorado State Board of Health.

7. The social work of the program to be provided by the social service staffs of those participating hospitals equipped with social service departments and by the Colorado State Board of Health.

8. The educational needs of the children treated under this program to be provided by existing private and public school teaching, vocational training and recreational facilities.

9. The follow-up care of the children treated to be under the joint supervision of the participating hospitals and the Colorado State Board of Health.

10. The mental hygiene aspects of the program to be directed by psychiatrists and neuropsychiatrists in private practice working on a part time basis in and through the various participating private hospitals or in their own private offices.

11. The program to be strictly limited to the diagnosis and treatment of acutely ill, financially eligible children properly referred to the Colorado State Board of Health by private physicians or accredited hospitals and health agencies.

12. Financial eligibility for free care under this program to be determined, in each case, by the Colorado State Board of Health in accordance with established standards for free medical care in Colorado.

ILLINOIS

New Chairman of Public Health Committee.—Benjamin Wham, Winnetka, has been appointed chairman of the Illinois Statewide Public Health Committee to succeed Frederic C. Woodward, LL.D., Chicago, resigned.

Physicians Honored.—The Saline County Medical Society held a dinner June 23 in Eldorado in honor of Drs. William T. Johnson, Eldorado; Joseph V. Capel, Harrisburg, and William D. Harrell, Norris City, who have completed fifty years in the practice of medicine and who have been awarded membership in the "fifty year club" of the state medical society.

Chicago

Personal.—Dr. Benjamin J. Feinstein was to retire July 31 as a police surgeon, after holding the position for twenty-seven years.

Psychiatric Clinic for Discharged Service Men.—The Illinois Society for Mental Hygiene announces the establishment of a psychiatric clinic in Chicago for service men discharged for psychiatric disorders. The clinic, which began July 18, will be open one evening a week in the former Washington Boulevard Hospital at 2449 West Washington Street. In the fall the services will be increased. The staff will include psychiatrists, psychologists and psychiatric social workers. It is hoped that similar clinics may be created throughout the state.

INDIANA

Activities at Indiana University.—In a recent statement to the board of trustees of the university, Dr. Willis D. Gatch, dean of the Indiana University School of Medicine, Indianapolis, stated that his division "has thrived on adversity," now having enrolled 313 medical students, 300 nurses, 14 laboratory technicians and 21 dietitians. Dr. Gatch stated that military discipline had been good for the students, having taught them to respect authority, to be punctual and to work. Students who fail at the end of the semester are not allowed to repeat the work and must leave school at once. Dr. Gatch stated that few failures had occurred except in the freshman year. In carrying out the program of the school, Dr. Gatch stated that one change affecting the curriculum was "the cutting away of obsolete and worthless material" and the reduction of the amount of work given in the specialties to that which a general practitioner needs to know. The students have been brought as much as possible into direct contact with the patients and have been made responsible for their own education. A resident clerkship procedure, inaugurated last year for an experimental period, was made effective in May of this year. This program includes an arrangement whereby each senior spends one semester as a resident clerk in the university hospitals or at Indianapolis City Hospital. Tentative postwar plans include the establishment in association with the Indiana State Board of Health of a school of public health, creation of extension courses of graduate medical instruction for hospital staffs and continuation of research activities.

KENTUCKY

Personal.—Dr. Milton Lopez Henriques, director of local health services for the Ministry of Health of Venezuela, is spending two months with the state health department in Kentucky under the auspices of the Rockefeller Foundation, according to the *Kentucky Medical Journal*.

Changes in Health Officers.—Dr. Jacob Leland Tanner has resigned as health officer of Mercer County, effective July 1, to reenter the private practice of medicine in Henderson.—Dr. Donald B. Thurber has resigned as director of the tricounty health department, Carrollton. Dr. Thurber, who will go to Paris to hold a similar position in Bourbon and Scott counties, will be succeeded by Dr. Mildred E. Burton Gabbard, who is being transferred from the Owsley County Department of Health, Booneville. Dr. Thurber will succeed P. A. Surg. George M. Jewell, U. S. Public Health Service Reserve, at the Paris unit.

Dr. Howard Honored for Legislative Work.—Dr. Carl C. Howard, Glasgow, was honored at a public celebration at the Glasgow Country Club, July 13, for his efforts as chairman of the planning committee of the Kentucky State Medical Association in urging the passage of legislation creating six districts for tuberculosis hospitals in the state. The bill, appropriating funds for construction of the hospitals, passed

both houses of the general assembly unanimously and Dr. Howard is credited with having worked untiringly in bringing this about. Included among those at the celebration were the officers of the state medical association and the Barren County Medical Society, the state health commissioner, the lieutenant governor, a state senator and three members of the house of representatives.

MARYLAND

Occupational Disease Amendment.—The Maryland State Department of Health and the Baltimore City Health Department recently amended its occupational disease regulation governing limits for toxic materials. The change provides that exposures to dusts, fumes, mists, vapors, gases or any materials that may affect health shall be kept below certain stipulated limits.

MASSACHUSETTS

Personal.—Dr. Claire W. Twinam, formerly acting medical superintendent of the Lakeville State Sanatorium, Middleboro, has been appointed to succeed Dr. Carl C. MacCorison as medical superintendent of the North Reading State Sanatorium, North Wilmington. —Dr. Emma M. Varnerin, formerly connected with the Boston Red Cross Blood Donor Center, is now assistant district health officer in Boston for the state department of public health.

Commitment to Penal or Mental Institutions Figure in Licensure.—At a meeting of the Massachusetts Board of Registration in Medicine May 17 it was voted unanimously that it shall be the policy of the board, following a hearing, to revoke or suspend as the case may be the registration of any physician who has been sentenced to a penal institution. The same action applies to the registration of any physician who has been committed to and not yet discharged from a mental hospital.

New Professorship of Nutrition at Tufts.—The selection of a professor of nutrition at Tufts College Medical School, Boston, is now being considered. Last year Tufts established a fund in the medical school to commemorate the seventieth birthday of Miss Frances Stern, chief of the food clinic of the Boston Dispensary, Boston (*THE JOURNAL*, July 31, 1943, p. 958). The fund was to be used by Miss Stern to extend the research and educational activities of the clinic. Recently the Frances Stern Committee on Nutrition was created, and one of its first actions was to approve the selection of a full professor of nutrition and to recommend a survey by members of the Tufts faculty who have included nutrition in their courses of the past practices and suggested future ones. The Charles Hood Dairy Foundation, a local group, has voted to contribute half the amount annually for three years that the nutrition committee believes would be needed to begin the project.

MINNESOTA

Kenny Technic Included in Continuation Course.—The University of Minnesota Center for Continuation Study Course sponsored a week's study in the management of infantile paralysis June 19-24, which was the first in a new series to include demonstrations of the Kenny technic and presentations on certain clinical and investigative aspects of the problem of poliomyelitis. A special faculty for the first course included Dr. Kenneth F. Maxey, Johns Hopkins University School of Hygiene and Public Health, Baltimore; Dr. Joseph Moldaver, Neurological Institute, New York; Dr. Donald Y. Solandt, University of Toronto, Canada; Dr. Robert Ward, Yale University School of Medicine, New Haven, Dr. Arthur L. Watkins, Massachusetts General Hospital, Boston, and Dr. Abe B. Baker, Berry Campbell, Ph.D., Dr. Wallace H. Cole, Dr. Ernst Gellhorn, Dr. Miland E. Knapp, Dr. John F. M. Pohl, Dr. Lewis Sher, Dr. Harry G. Wood and Sister Elizabeth Kenny of the University of Minnesota. The investigative and Kenny training programs of the University of Minnesota are sponsored by the National Foundation for Infantile Paralysis. Additional information may be obtained about future courses from Dr. William A. O'Brien, University of Minnesota, Minneapolis 14.

MISSOURI

Personal.—Dr. Frank J. Tainter, St. Louis, will serve as college physician at Lindenwood College, St. Charles, for the remainder of the school term, taking the place of Dr. Eugene J. Cauty, St. Charles, who is entering military service.

NEBRASKA

State Medical Election.—Dr. Charles McMartin, Omaha, was chosen president-elect of the Nebraska State Medical Association at its recent annual meeting; Dr. Floyd L. Rogers, Lincoln, is president. Drs. William J. Reeder, Cedar Rapids, and William J. Gentry, Gering, are vice presidents, Dr. Roy B. Adams, Lincoln, is secretary and Mr. M. C. Smith executive secretary. The next annual session will be held in Lincoln.

NEW HAMPSHIRE

Statewide Tuberculosis Register.—The *Bulletin* of the National Tuberculosis Association announced that New Hampshire has been chosen as the first state in which a statewide register is to be undertaken. New Hampshire was selected because of the state's small case load, limited area and unified control of tuberculosis activities. The bulletin states that if, after suitable trial, a statewide register proves to operate satisfactorily in New Hampshire, plans will be made to extend this type of register to larger states where the problem is much more complicated.

NEW JERSEY

Fifty Years of Medicine.—The Middlesex County Medical Society gave a dinner June 21 in honor of six physicians who had completed fifty or more years in the practice of medicine. Dr. Henry Haywood, New Brunswick, was toastmaster and the guests of honor were:

Dr. Grover T. Applegate, New Brunswick, sixty years in practice.
Dr. John L. Lund, Perth Amboy, fifty two years in practice.
Dr. Charles B. Burnett, South River, fifty one years in practice.
Dr. Ira T. Spencer, Woodbridge, fifty one years in practice.
Dr. George W. Tyrrell, Perth Amboy, fifty one years in practice.
Dr. Frank C. Henry Sr., Perth Amboy, fifty years in practice.

State Board Upheld on Granting of Licenses.—The practice of the New Jersey State Board of Medical Examiners in granting licenses only to graduates of medical schools accredited by the American Medical Association was upheld July 18 by the state supreme court, the *New York Times* reported. The court had been petitioned by Dr. Albert Seymour Rothseid, Lawrence, Mass., to compel the board to grant him a license to practice medicine and surgery in New Jersey. The board had denied Rothseid a license on the basis that the Middlesex University School of Medicine of Massachusetts, from which he was graduated in the winter of 1943, was not accredited by the American Medical Association and therefore was not on the approved list of the board. Rothseid's argument was said to be that the action of the board in accepting the grading of medical schools of the American Medical Association without using its own judgment or discretion constitutes an unlawful delegation of its duty and power. In rendering an opinion, Justice Newton H. Porter said, according to the *Times*, "We think not. It is entirely within its discretion, it appears to us, to adopt the standard and grading of an organization of which it has knowledge and confidence." Rothseid, son of Dr. Abraham Rothseid, Newark, has a license to practice medicine in Massachusetts and is a member of the staff of the Lawrence General Hospital, Lawrence, Mass.

Defense Council Functions as Disaster Unit.—The Newark Defense Council, originally set up as an air raid emergency council, now functions as a community disaster unit and is planned to work in close cooperation with the American Red Cross. In the event of a catastrophe there are three dispatching points in the city, the Emergency Medical Service Control Center, the Newark Beth Israel Hospital and the Columbus Hospital, from which emergency medical service units are dispatched. Each unit consists of nurses, a first aider, a nurses' aide, an attendant and a motor corps driver. The casualties are given first aid and if necessary are taken to the nearest hospital or casualty station. There are nine cooperating hospitals, five reserve hospitals and seven casualty stations which would be activated and manned in an emergency. During an emergency the hospitals report to the central control office, stating the number of beds and personnel available. Regular incident rehearsals are held each month. Medical observers witness each incident and report any faulty action. Dr. Joseph A. Clarken is director of the emergency medical service. Dr. Lester W. Eisenstadt is coordinator of hospitals. Other units function under specially appointed supervisors while the general personnel, who are fingerprinted and equipped with identification cards, armbands, gas masks and steel helmets, include 212 physicians classified under their specialties, 282 registered nurses, 530 student nurses, 66 practical nurses, 375 Red Cross nurses' aides, 59 first aiders, 13 Red Cross motor corps ambulance drivers, 12 hospital superintendents and 408 attendants.

NEW YORK

State Plans Free Plasma Distribution.—The state health department is working on a plan to develop a program to make whole blood, blood plasma and other derivatives available for civilians throughout the state, the *New York Times* reported July 14. Dr. John B. Alsever, U. S. Public Health Service, who is in charge of the Office of Civilian Defense plasma reserve program, has been lent to the health department to help it develop a distribution program. The plan recently inaugurated in Michigan is now being studied by the New York department (*THE JOURNAL*, April 1, p. 1000). The *Times* stated that about twenty hospitals in New York have been cooperating with the Office of Civilian Defense to meet emergency needs and that a number of other hospitals have maintained blood banks to handle possible disasters in larger centers. The value of this plan is too great to be limited and should be extended to other sections of the state, it was said.

New York City

Personal.—Dr. Jacob Sacks, formerly assistant professor of pharmacology, University of Michigan Medical School, Ann Arbor, has been appointed director of the pharmacologic laboratory of Endo Products, Inc., Richmond Hill.

Penicillin Free to Hospital Service Members.—Penicillin will hereafter be provided where necessary without charge to the hospitalized members of Associated Hospital Service using semiprivate and ward accommodations in 260 hospitals of the New York area. A special reserve fund is to be set up to reimburse hospitals for additional costs due to this and other unusual remedies required for the treatment of Associated Hospital Service members.

Noncommercial Drug Exhibit.—The New York Academy of Medicine has set up plans for a continuous noncommercial drug exhibit at its headquarters. The exhibit will be in charge of a physicians' committee on drug exhibits which will work with an advisory committee of drug manufacturers. Dr. Theodore G. Klumpp, president of Winthrop Chemical Company, Rensselaer, N. Y., is chairman of the advisory committee. A person will be in charge of the exhibit who will be able to answer questions and explain new drugs, and pamphlets and literature will be furnished, giving the research and clinical usage and describing the products.

Fluorine and Dental Caries.—The New York Institute of Clinical Oral Pathology will devote its first open meeting at the New York Academy of Medicine, October 30, to a symposium on fluorine and dental caries. Additional information may be obtained from Mr. G. Roistacher, executive secretary of the institute, 101 East 79th Street, New York. The institute was incorporated in New York on Dec. 20, 1932, organized for the study and advancement of oral pathology, particularly of the correlation of clinical findings, x-ray examination and histopathologic evidence. Dr. Raymond Gettinger, Brooklyn, is pathologist of the laboratory. Said to be the first of its kind, the institute's physical equipment began with the presentation by Dr. Theodor Blum of his medical laboratory with all specimens and apparatus.

OKLAHOMA

Physician Gives \$100,000 to Orphan's Home.—Dr. and Mrs. Silas G. Hamm, Haskell, have given property and other considerations approximating \$100,000 to the Tipton Orphan's Home of the Church of Christ. The gift will make possible the construction of three new buildings out of the six planned by the home.

Personal.—Dr. Elmer E. Goodrich, Crescent, has been named health officer of Chickasha and Grady County.—Dr. John F. Hackler, Oklahoma City, director, technical field unit, Oklahoma State Department of Public Health, has been appointed professor of hygiene and public health at the University of Oklahoma School of Medicine, Oklahoma City.

State Society Plans New Library.—The council of the Oklahoma State Medical Association recently approved the installation of a new council room and library in the office of the state association. The library will be set up with the idea of supplying complete information on the subject covered by membership committees.

The Dr. M. L. Perry Scholarship.—Dr. John C. Perry, Tulsa, has established an annual scholarship for premedical students at the University of Tulsa, to be known as the Dr. M. L. Perry Scholarship in honor of the late Dr. Marcus L. Perry, Tulsa, father of Dr. John C. Perry. Selection of the winner of the scholarship will be based on the contestant's past scholastic record, medical aptitude, character and financial need.

Plan for Health Education.—A program for health education will be launched in Oklahoma during the coming school year under the auspices of the state superintendent of public instruction, the state health commissioner and members of their respective staffs. As a preliminary step in the development of its program, workshops in health education were conducted in four centers from June 12 to June 23: Northeastern State College, Tahlequah, East Central State College, Ada; Southwestern Institute of Technology at Weatherford and for Negroes at Langston University, Langston. The workshops were designed for superintendents, principals, teachers, directors of physical education, public health personnel, other professional personnel and lay persons in general who may be interested in promoting individual and community health. Special attention was given during these workshops to the formation of committees to outline a syllabus and other materials necessary to the success of the state plan for health education, which, it is hoped, will make for better relationships in health education between school and community.

VIRGINIA

Changes in the Staff at Medical College of Virginia.—Promotions on the staff of the Medical College of Virginia, Richmond, effective July 1, include the following:

Sumter S. Arnim, D.D.S., to associate professor of operative dentistry and pathology.

John C. Forbes, Ph.D., to research professor of biochemistry.

Dr. Emmett T. Gatewood to clinical professor of otology, laryngology and rhinology.

Dr. John S. Howe to professor of pathology.

Karl L. Kaufman, Ph.D., to associate professor of pharmacognosy.

Dr. Emanuel U. Wallerstein to professor of clinical otology, laryngology and rhinology.

Personal.—Dr. Walter L. Barnes, Petersburg, has been appointed coroner to succeed Dr. Elisha L. McGill, who resigned after holding the position since 1919.—Dr. Carl W. White has been appointed medical superintendent of the Lynchburg State Colony, Colony, succeeding Dr. George B. Arnold resigned.—Dr. William E. Brown, for twenty-three years medical director and superintendent of the Blue Ridge Sanatorium, Charlottesville, has resigned because of ill health. He has been succeeded by Dr. Frank B. Stafford, assistant superintendent since 1920.—Nelson Podolnick, assistant surgeon, U. S. Public Health Service Reserve, has been appointed health director for the health departments of Fairfax, Prince William and Stafford counties.

WASHINGTON

Advisory Committee Named for State Department of Health.—The board of trustees of the state medical association has approved the appointment of an advisory committee to the state department of health to be composed of the chairman of the following committees: industrial hygiene, maternal and child welfare, neoplastic, public health and sanitation, public laws, public relations, social hygiene, tuberculosis and mental hygiene.

Establishment of Blood Bank Approved.—The establishment of a statewide blood bank under the auspices of the state department of health, the state medical association and the county medical societies has been approved. Funds have been obtained with the understanding that it will be lent for use in blood bank areas. Medical societies within such major areas will control the bank with the understanding that hospitals will not be permitted to make a profit from it. The blood and plasma will be sold at a reasonable cost to maintain the bank. The plan will work in with the civilian defense banks now in existence, thereby utilizing stock now on hand and replacing it continuously within a sixteen day period, after which it will be converted into plasma.

WISCONSIN

State Director Named for Infantile Paralysis Program.—Mr. Palmer F. Daugs, Lakemills, chairman of the Jefferson County chapter of the National Foundation for Infantile Paralysis, has been appointed state representative to direct the program of the National Foundation in Wisconsin. Mr. Daugs will act as coordinator between the National Foundation and the seventy-one county chapters.

Stanley Seeger Honored.—The amphitheater of the Milwaukee Children's Hospital has been named in honor of Dr. Stanley J. Seeger, Texarkana, Texas, vice president of the American Medical Association and formerly chief of staff of the hospital. The amphitheater was erected largely through the efforts of Dr. Seeger while in service at the hospital. On June 8 a plaque was unveiled in the amphitheater during ceremonies attended by Dr. Seeger, and the room was dedicated to bear his name.

GENERAL

Dr. Kelly Resigns as Secretary of Pharmaceutical Group.—E. F. Kelly, Phar.D., since 1926 secretary of the American Pharmaceutical Association, has resigned. A successor has not been named.

New Hospital Library Group Formed.—The Special Libraries Association formed a new national Group of Hospital and Nurses' Librarians within its organization during its annual conference, June 19-21, in Philadelphia, as a result of a petition submitted by hospital librarians. Miss Ruth Tews, head of the hospital library service of the St. Paul Public Library, was appointed chairman. The new group will give all librarians working in hospitals opportunity for active participation in the national development of their work, in the determining of standards, in the consideration of publications and in general extension of their services. Those interested in receiving the first News Letter of the new group should communicate with Miss Tews, Hospital Service, St. Paul Public Library, St. Paul 2, Minn.

National Medical Association.—The fiftieth annual convention of the National Medical Association will be held at the Sumner High School, St. Louis, August 14-17, under the presidency of Dr. Thomas M. Smith, Chicago. Included among the speakers will be:

Dr. John W. Lawlah, Washington, D. C., Supply and Demand of Negro Physicians as Related to Present War Emergency.

Dr. Harvey N. Middleton, Indianapolis, Diagnosis and Prognosis of Bundle Branch Block.

Dr. Herbert J. Erwin Jr., St. Louis, A Report of 100 Cases of Fever Therapy in Neurosyphilis.

Dr. Leonidas H. Berry, Chicago, Value and Mechanism of Certain Drugs in Gastrointestinal Disorders.

Dr. Charles R. Merry, St. Louis, Recent Advances in the Treatment of Burns.

The preliminary program includes many other speakers and representatives of the armed services. Dr. George A. Moore, Roanoke, Va., will discuss "Socialized Medicine" at the general closing session. On August 15 Dr. Charles R. Drew, Washington, D. C., winner of the 1944 Spingarn Medal (*THE JOURNAL*, April 22, p. 1212) will deliver the fourth annual oration in surgery, on "The Evolution of the Plasma Bank."

Incidence of Poliomyelitis and Other Diseases.—Four hundred and eighty cases of poliomyelitis were recorded during June for the country as a whole, according to a release from the Office of War Information, July 17, issued for the U. S. Public Health Service, Federal Security Agency. One hundred and thirty occurred in North Carolina, where the outbreak is localized in west central counties of the state and 55 in Kentucky. No other states have reported figures above normal expectancy. Scarlet fever totals remained at epidemic levels in June, reports for the month showing 11,000 cases as compared with 8,400 in June 1943 and about the same number for normal expectancy. Weekly figures for the month indicated a drop from an estimated 3,000 cases in the first week of June to half that figure in the last week. June, with a total of 113 reported cases of Rocky Mountain spotted fever, was high month for that disease; 61 cases occurred in the South Atlantic states with half of that number reported in Maryland and Virginia. On a nation wide basis, the total cases of Rocky Mountain spotted fever last month exceeded the June 1943 figures by twenty. The total of 170 cases reported in the first half of this year were approximately 20 less than in the same period of 1943. Although still epidemic, meningococcal meningitis is now in its seasonal decline. Totals for the June record 1,100 cases against 1,500 for the same period of last year. The disease has been epidemic for the past two years, according to the report, with high rates in the winter months and recessions in the summer.

LATIN AMERICA

Health Activities in Latin America.—Disbursement of Health Funds.—A total of \$1,130,000 has been allotted to the Puerto Rico Department of Health for the development of public and maternal health programs. Distribution of the fund will include \$68,000 for the federal program of crippled children, maternal and child care service, \$200,000 for the antivenereal program, \$315,000 for public health, \$40,000 for social work and \$282,000 for title VI of the Social Security Program. Puerto Rico will provide \$40,000 for crippled children, \$100,000 for maternal and child care, \$75,000 for the antivenereal program and \$10,000 for social service.

Typhus Situation Serious.—The recent increase in typhus in San Juan constituted "near epidemic proportions," according to the department of health of Puerto Rico. An average of 12 cases a month were reported from January through May

of this year, while at the end of the first seventeen days of June 19 cases had been reported. It was hoped that the "clean up campaign," which was begun June 18, would assist in improvement of sanitary conditions in San Juan.

Funds for Nursing Care.—The insular emergency council of Puerto Rico has approved the employment of 130 public health nurses at \$1,200 a year each, for twelve months starting July 1. An appropriation of \$156,000 was approved from war emergency program funds to pay the salaries. The council also approved the use of \$35,340 at the School of Tropical Medicine to solve the nursing crisis and an additional \$19,008 to meet the requirements of the minimum wage law for unskilled hospital personnel at the University Hospital of the School of Tropical Medicine.

New Construction.—Other projects approved by the insular emergency council of Puerto Rico included the construction of a two story concrete hospital building at Cayey to cost \$100,000 and improvements to the Municipal Hospital, poor asylum and city hall building at Mayaguez.

Lottery Funds Used for Tuberculosis Work.—A total of \$17,512,710 derived from the "insular lottery" in Puerto Rico has been expended into a ten year period as follows: for tuberculosis hospitals and other expenditures in the antituberculosis campaign, \$4,878,958.31; for second and third class municipalities, \$2,482,721.03 for welfare services; for charity district hospitals, \$2,311,753.66, for maintenance and operations of these hospitals.

Regulation on Hospital Admission of Patients.—A new regulation has been approved in Puerto Rico providing that admission of patients to the various services in the district hospitals shall be in accordance with a system of quotas for services in which there shall be assigned to each municipality a number of beds proportional to the number of inhabitants of each municipality, less the number of beds for hospitalization which the corresponding medical service of each municipality may have. The regulation provides further that a reserve of 40 unassigned beds shall be made in each hospital for emergency and isolation cases. Further provisions cover the applications for admission and the investigation of qualifications for admission. Persons whose annual income is not greater than \$1,000 in case they have dependents, and \$500 if they have not, shall be considered as deserving persons. Except in cases of emergency hospitalization, all admissions to hospital shall be made through the dispensary of the hospital.

Society of Kellogg Fellows.—The organization of the Society of Kellogg Fellows was recently announced. Named in honor of the founder of the Kellogg Foundation, the society aims to stimulate professional and educational activities of Latin American ophthalmologists. Dr. Harry S. Gradle, Chicago, was chosen honorary president. Members of the society are all Latin American ophthalmologists who have carried on postgraduate studies in their specialty through the aid of the W. K. Kellogg Foundation and the Pan American Congress of Ophthalmology. Members of the organizing committee are Drs. Daniel Silva, Mexico, Agustin Perret, Venezuela, and Manoel A. da Silva, Brazil. The final steps to complete the organization will be taken during the annual meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago, October 8-12. *Ophthalmologia Ibero-Americana* has been designated the official journal of the society.

Special Society Elections.—Dr. Antonio Cândido de Camargo was elected president of the Associação Paulista de Combate ao Câncer for 1944. Drs. Luiz do Rego and Oscar Monteiro de Marros, vice presidents and Dr. Paulo Tibiriçá general secretary.—Dr. Alberto Inclán Costa was named president of the Sociedad Cubana de Ortopedia y Traumatología recently, Dr. Rafael Peñalver vice president and Dr. Luis Iglesias de la Torre secretary; all are from Havana.

Physician Candidate for President.—Dr. Ramon Grau San Martin, who served as president of Cuba for a time in 1933, again is a candidate for the position.

Deaths in Other Countries

Dr. Johan Harald Ernberg, private physician to King Gustaf of Sweden, died in Stockholm, May 26.—**Dr. Carlos Eduardo Finlay Shine**, formerly secretary of health and professor of medicine at the University of Havana, Cuba, died March 11, aged 76. Dr. Finlay was the son of Carlos J. Finlay, pioneer in yellow fever research. He graduated at Columbia University College of Physicians and Surgeons in 1889. Dr. Finlay had been professor of ophthalmology at the University of Havana since 1907 and had served as dean of the medical school for a year in 1934.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 1, 1944.

Criticisms of the National Health Service Scheme

In a letter to the *Times* the president of the Royal College of Surgeons, Sir Alfred Webb-Johnson, points out that a grave defect in the government scheme for a national health service is that the medical profession is not given any direct responsibility for its planning and administration. The physicians are relegated instead to an advisory status, and their advice is not to be made available to the public. They can be of greater service as collaborators than as critics, the letter states. Moreover, their advisory functions at the center are robbed of much of their value by the fact that the medical advisers are to be chosen by the minister of health and not by the profession, although several members of the present advisory committee are ex officio members and so speak in a representative capacity. At the periphery again their function is advisory, but much more efficient planning and administration will be achieved if the profession and voluntary hospitals are made responsible partners in these tasks.

It is also in the people's interest that the freedom of the profession be maintained. Independent practice is a large factor in ensuring this freedom, for it leaves a considerable number of practitioners at liberty to state their views freely and publicly without regard to departmental approval. The continuance of independent medical practice can be ensured by not including in the service those above a certain limit of taxable income who are able and anxious to pay for services as required, it is suggested. Another important way of maintaining the freedom of the profession is avoidance of whole time salaried appointments where they are unnecessary. Contributors could still have the doctor of their choice. The hospital service is a different matter; being an organization of specialist services, it is more suitably provided out of rates and taxes.

There is a proposal to vest in a Central Medical Board—a body of civil service structure appointed by the Ministry of Health—the power to prevent a practitioner from offering his services to public patients in any district of his choice. It is not proposed that he should be prevented from practicing there but only that he should not be allowed public patients. Thus these people would be refused free choice of doctor. It is also proposed to require newly qualified doctors to accept whole time public service for a term of years in order to secure an adequate number for unattractive areas. This is a definite encroachment on the freedom of the citizen, it is maintained.

Rectal Pain

In *Guy's Hospital Reports* Prof. J. A. Ryle has made an important clinical contribution on the subject of rectal pain. He emphasizes the fact that, as Hilton pointed out, pain is often absent altogether in carcinoma of the rectum. This has led repeatedly to delayed and faulty diagnosis. In a series of 28 cases Ryle found pain absent in 8; in another 10 there was abdominal pain (colonic pain above the level of the growth) but no rectal pain, while in the remaining 10 there was pain or discomfort referred to the rectum itself. Thus true rectal pain was found in a little over a third of the cases. A sense of pressure or ineffectual calls to stool may be described, but frequently, urgency, looseness and blood in the stools are more constant and valuable signs than pain. Bladder irritation and referred pains in the testicles, the hip or down the back of the legs are secondary effects, indicating extensions of the growth

and therefore late symptoms. Of the local rectal sensations "a sort of toothache in the rectum," "occasional sharp, shooting pains" and "an obstructed feeling, not pain" were descriptions given by 3 patients. The most severe pain is encountered in cases in which the growth invades the anal canal; in these circumstances there is pain on defecation.

The other more important causes of rectal pain are ball valve accumulation of hard feces, *tabes dorsalis* and nervous proctalgia. In ball valve accumulation the subjects are usually elderly or bedridden, and a recent history of gastric hemorrhage, other dehydration or a barium meal examination is common. Blood or barium sulfate give the requisite firmness and stickiness to the impacted mass to prevent ready evacuation. In hospital cases the cause of the symptoms escaped the recognition of house officers and ward sisters. The pain is likened to labor pains and is described as a "bearing down" pain, which may occur rhythmically. The diagnosis is made by digital examination. In nervous proctalgia there is rectal spasm. The pain starts as a dull ache but rises rapidly to an agonizing form. It is commonly nocturnal and awakens the victim at about 2 a. m. It is frequently associated with fatigue or anxiety and may be associated with sexual excitation. Relief has been obtained by rapid inflation of the bowel with air or by the injection of water. A hot bottle applied to the sacrum may also give relief.

Rapid Treatment of Wounded

The speed with which the war wounded receive medical aid has been described in previous letters and is further illustrated in the Normandy campaign. Surgeons went in with the first waves—with the parachutists and glider troops and in the assault boats. Men were given skilled attention within a few minutes of being hit. Specialized teams carried penicillin, whole blood and plasma into the front lines. During the first few days the wounded in the inland fighting were brought to the beaches in jeeps and later in motor ambulances, placed in "ducks" and run into tank landing craft, which brought them to England. As soon as the vessels bringing tanks from England were unloaded on the beaches they were prepared to receive the wounded, and an emergency operation theater was rigged up. From the moment a man was picked up in the field he was watched over by doctors, surgeons and transfusion experts. Yellow tabs were tied to the wounded taking penicillin, so that further doses could be given as they passed along the evacuation service; red tabs were tied on men taking sulfonamides. During the first day or two 400 bottles of blood were sent across the English channel daily by motor launch, but as the number of casualties was smaller than was expected this supply was cut down. Blood banks were established behind the beaches.

Psychologic Clinic Established at Guy's Hospital

The opening of the York Clinic for Psychological Medicine at Guy's Hospital is a new departure. It is the first clinic of its type in this country specially built at a general hospital as part of a great teaching school. Over twenty years ago the Middlesex Hospital made a pioneer move when, by arrangement with St. Luke's Hospital for Mental Diseases, a small unit was formed at the main teaching hospital for psychologic patients. The Guy's Clinic has been designed in accordance with the best modern experience and has beds for 43 patients. An advantage of the conjunction of a large general hospital with a special unit for mental diseases is that it will encourage sufferers to overcome their usual reluctance to submit themselves to treatment. Moreover, the education of medical students has suffered from the absence of a psychologic department specially built apart from the ordinary hospital. A donation of \$215,000 from the York Trust in conjunction with a gift of half the site by Lord Nuffield has made this project possible.

BRAZIL

(From Our Regular Correspondent)

June 24, 1944.

Treatment of Osteoarthritis by Parathyroidectomy

The late results of the treatment of osteoarthritis by thyroidectomy were studied by Dr. Sebastião Hermeto Junior of the Faculty of Medicine of the University of São Paulo. He emphasized the necessity of correct diagnosis based on an accurate clinical examination of the patient and on careful analysis of roentgenograms and laboratory findings. Dr. Hermeto Junior reported 20 cases with varying forms of osteoarthritis, including some cases of spondylitis. The operation performed in these cases was unilateral parathyroidectomy; 6 patients were operated on a second time in order to reach another gland. The late results are no improvement in 6 cases, improvement in the pain and of the joint block in 10 cases and good results in 4 cases. One of the latter presented before surgical treatment a pathologic condition of one of the severest anatomic forms that the author had ever seen. Dr. Hermeto Junior thinks that parathyroidectomy has favorable indications for treating osteoarthritis.

Narrowing of the Esophagus Caused by Lye

Dr. J. A. Arruda Botelho, endoscopist of the Beneficência Portuguesa de São Paulo, has described a new technic by which he has obtained good results in all cases of narrowed esophagus due to lye which he has treated. There were 15 patients. The process consists in using the dilator of Plummer-Jackson after the patient has submitted to a previous gastrotomy. The gastrotomy permits a conducting thread to extend from the mouth to the gastrotomy, permitting the dilator to slide by the thread, dilating the esophagus its full length. The conducting thread, well stretched, permits a forced dilatation without any danger whatever to the patient, because the point of the dilator adapts itself to all the irregularities of the esophagus.

After the dilation is completed, in about three months the author begins to use the esophagoscope of Chevalier Jackson to maintain the dilatation until the esophagus is completely healed.

The only difficulty with this procedure consists in passing the thread from the mouth to the gastrotomy, and it is just this which makes the method original and guarantees its efficiency and harmlessness.

When the narrowing is not fully closed, the patient can be made to swallow a fine linen thread, and by simple suction this passes through the gastrotomy. Joined to this fine thread is a thicker one which is necessary for the dilation. If the thread will not pass by swallowing, the esophagoscope of Chevalier Jackson must be used.

Brief Items

Dr. Estellita Lins, a practicing surgeon of Rio de Janeiro and a graduate from the emergency course in military medicine, has been called to active service in the army. Dr. Estellita Lins has a good background in war surgery, as he served during the first world war in France at the Paris Hospital Vaugirard.

An association of physicians working in hospitals, sanatoriums and allied institutions has recently been organized. The governing board of the association includes Dr. Edgard de Almeida, Dr. João Borges Filho and Dr. E. Carlos Carvalho.

A School of Hygiene and Public Health has been created at the University of São Paulo as a development of the course in hygiene and public health run by the Institute of Hygiene of the university. The late malariologist Dr. Samuel T. Darling and Dr. W. G. Smillie, professor of public health at Cornell Medical College, both taught in São Paulo during the early years of the course in hygiene and public health. Dr. Geraldo

Paula Souza, professor of hygiene at the University of São Paulo, now commissioned in Washington, has been a leading professor of the course and is expected to be the dean of the new school.

The National Academy of Medicine of Rio de Janeiro has recently created a medal prize under the name of Dr. Rocha Vaz, to be awarded every year to the best paper from a Brazilian author concerning human constitution, endocrinology and metabolism.

Dr. Christopherson and the Special Service of Public Health

Dr. E. H. Christopherson, superintendent of the Brazilian Special Service of Public Health, arrived in Rio de Janeiro recently, back from a trip to the United States, where he presented a detailed report of his work to Gen. George C. Dunham, director of the Division of Health of the Office of the Coordinator of Inter-American Affairs. As reported in a previous letter (THE JOURNAL, Sept. 11, 1943) the Special Service of Public Health is an organization created cooperatively by the American and Brazilian governments to take charge of health work in the Amazon basin, where a large number of workers, forming the so-called rubber army, are now subjected to the hazards of many tropical diseases. Dr. Christopherson stopped at Belém, state of Pará, at the mouth of the Amazon River, where he inspected the services located in the neighborhood of that city. Speaking to newsmen on his arrival in Rio de Janeiro, Dr. Christopherson pointed out that perfect cooperation between the American and Brazilian authorities spoke well for the success of the enterprise. He stressed the need for continuing this important health work after the war.

Vaginal Hysterectomy as a Prophylactic Measure In and After the Menopause

From 1932 until 1941, 1,692 women died from cancer of the uterus and 639 from breast cancer in Rio de Janeiro. Thirty cases of vaginal hysterectomy performed in women in the menopause or postmenopause, most of whom were referred for uterine bleeding in nonmalignant states, are reported by Prof. Arnaldo de Moraes. Supporting this indication for surgical treatment, different lesions localized in the uterus (proliferative, erosions of the cervix, chronic cervicitis, chronic endometritis, hyperplasia of the endometrium, myomas and uterine atrophy) were found. The role those lesions may display in the incidence of cancer, in connection with personal or hereditary, physiologic and pathologic factors, is emphasized.

From his study the author concludes that vaginal hysterectomy, performed under local anesthesia, as routinely practiced in his clinic, is indicated when those associated factors are present and when the uterus is already functionless and on account of its lesions must be considered as potentially malignant.

Marriages

GEORGE ANDERSON FOWLER, New York, to Miss Diana A. Skouras at Mamaroneck, N. Y., June 28.

JULIUS E. MONEAGLE, Madison, N. J., to Miss Dorothy Phyllis Costabile of New York recently.

ALVIN FRANCIS ST. AMANT, Gonzales, La., to Miss Nancy Webb of Demopolis, Ala., July 8.

PAUL I. KEARNEY, Brooklyn, to DR. GRACE C. VANDERPOEL of Rutherford, N. J., July 1.

JOHN A. WRIGHT JR. to Miss Mary Catherine Campbell, both of Doswell, Va., June 3.

VICTOR G. BALEONI, Boston, to Miss Marjorie Fletcher in New York, June 17.

CHARLES SHORNSTEIN to Miss Estelle Hartman, both of New York, July 2.

Deaths

William Alexander Lambeth, Charlottesville, Va.; University of Virginia Department of Medicine, Charlottesville, 1892; served as instructor in physical culture, director of the Fayerweather Gymnasium, lecturer on hygiene and materia medica, adjunct professor and professor of hygiene and materia medica and professor of hygiene at his alma mater; also superintendent of buildings and grounds from 1905 to 1928; secretary of the general athletic association of the University of Virginia from 1897 to 1921; vice president of the department of physical education at the Chicago Exposition in 1893; member of the American College Directors Association and in 1896 vice president; member and from 1897 to 1899 president of the Virginia Intercollegiate Athletic Association; served as treasurer of the National Collegiate Athletic Association; member of the American Olympic Committee for the Stockholm games in 1912; member of the track rules committee of the National Collegiate Athletic Association and a member of the football rules committee from 1908 to 1921; past president of the Society of Directors of Physical Education; chairman of the athletic conference of Southern state universities; member of the American Seismological Society, Raven Society and the American Society of the Royal Italian Orders; decorated a Cavalier in the Order of the Crown of Italy in 1930 and Commendatore in 1933; honorary member of the American Institute of Architects; the Lambeth athletic field at the University of Virginia is named for him; author of "Trees and How to Know Them," "Thomas Jefferson's Architecture," "Geology of the Monticello Area," "School of Athens" and "Food and Dietetics"; died June 24, aged 76, of heart disease.

Abell Duncan Hardin, Dallas, Texas; Baylor University College of Medicine, Dallas, 1909; member of the State Medical Association of Texas, Dallas Southern Clinical Society and the Texas Ophthalmological and Otolaryngological Society; president of the Dallas Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; assistant professor of clinical otolaryngology and bronchoscopy at the Southwestern Medical College of the Southwestern Medical Foundation since 1943; associate in clinical ophthalmology and otolaryngology at his alma mater 1917-1920, assistant 1920-1924, instructor 1924-1931, instructor in clinical otolaryngology and bronchoscopy 1931-1938 and assistant professor 1938-1943; served as dispensary otolaryngologist and bronchoscopist, Baylor Hospital; died May 10, aged 64.

Isaac Hamilton Browne, Winchester, Ky.; Kentucky School of Medicine, Louisville, 1897; member of the Kentucky State Medical Association; served for eighteen months at Base Hospital number 120 at Tours, France, during World War I and discharged with the rank of captain; served as examiner for the local Selective Service Board during World War II; for many years health officer of the city of Winchester and Clark County; on the staff of the Clark County Hospital; served as surgeon for the Louisville and Nashville and the Chesapeake and Ohio Railroad companies; a charter member of the Rotary Club; died in the Veterans Administration Facility, Lexington, June 19, aged 67, of gangrene of the lower extremities and general arteriosclerosis.

Adolph Hartung • Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; professor of radiology at his alma mater, now known as the University of Illinois College of Medicine; specialist certified by the American Board of Radiology, Inc.; member of the American Roentgen Ray Society, Radiological Society of North America, Inc., and the American College of Radiology; formerly on the staffs of the Alexian Brothers', Cook County, Policlinic and Henrotin hospitals; consultant, Women and Children's Hospital; on the staff of the Research and Educational Hospitals, University of Illinois, where he died May 29, aged 61, of coronary stenosis.

Louis Curtis Ager, Warner, N. H.; Long Island College Hospital, Brooklyn, 1893; member of the New Hampshire Medical Society; at one time instructor in pediatrics at his alma mater; past president of the Brooklyn Pediatric Society; formerly served with the city health department of Brooklyn; formerly on the staffs of the Potts Memorial Institute, Livingston, N. Y., Veterans Administration Facility, Rutland Heights, Mass., Long Island College Hospital, Kingston Avenue, Norwegian and St. Mary's hospitals, Home for Consumptives and the Home for Friendless Women and Children, all of Brooklyn; died May 18, aged 75, of a self-inflicted bullet wound.

Theodore F. Heavenrich • Port Huron, Mich.; Detroit College of Medicine, 1900; past president of St. Clair County Medical Society; formerly councilor of the Seventh District of the Michigan State Medical Society; served as surgeon for the Rapid Railway System and Detroit United Railway and as assistant surgeon for the Pere Marquette Railway; formerly medical examiner for various insurance companies; physician and surgeon for the Port Huron Sulphite and Paper Company and the Detroit Edison Company; on the staff and formerly medical director of the Port Huron Hospital, where he died May 5, aged 69, of heart disease.

Charles Benjamin Yost • Bloomsburg, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1910; served as president and secretary of the Columbia County Medical Society; secretary of the Bloomsburg Board of Health; during World War I a medical examiner of the exemption board in District number 1, and served in the medical corps of the U. S. Army; member of the Selective Service System during World War II; a charter member of the Kiwanis Club; medical director of Columbia County Red Cross; on the staff of the Bloomsburg Hospital, where he died June 28, aged 56, of cerebral hemorrhage.

Lawrence Chamberlain Grosh • Toledo, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; specialist certified by the American Board of Internal Medicine; served as a captain in the medical corps of the U. S. Army during World War I; instrumental in building the Toledo Hospital in 1931, serving as chief of staff for twelve years; active in the completion of the Toledo Hospital Institute for Medical Research in 1942; died July 6, aged 73, of hemorrhage from the internal mammary artery caused by a fracture of the sternum, which was due to osteoporosis.

Rush Leslie Burns, Los Angeles; Rush Medical College, Chicago, 1906; fellow of the American College of Surgeons; for many years city and county health officer in Two Harbors, Minn., where he had been one of the physicians in charge of the Burns and Christensen Hospital and served as chief surgeon for the Duluth and Iron Range Railroad and assistant chief surgeon, Duluth, Missabe and Northern Railroad Company; formerly part owner and physician in charge of the Soudan Hospital, Soudan; died in Santa Monica Hospital, Santa Monica, May 9, aged 66, of cirrhosis of the liver.

Richard Edward Albert, Portsmouth, Va.; University of Virginia Department of Medicine, Charlottesville, 1919; member of the Medical Society of Virginia; on the staffs of the Parrish Memorial Hospital and the King's Daughters' Hospital, where he died May 30, aged 48, of left hemiplegia, arteriosclerosis and malignant hypertension.

Charles K. Albertson, Benton, Pa.; Maryland Medical College, Baltimore, 1907; member of the Medical Society of the State of Pennsylvania; past president of the Columbia County Medical Society; on the staff of the Bloomsburg Hospital, Bloomsburg, where he died May 8, aged 60, of peritonitis and perforated appendicitis.

Irving Sydney Barcham • New York; New York University Medical College, New York, 1935; diplomate of the National Board of Medical Examiners; assistant adjunct surgeon, Hospital for Joint Diseases, where he died May 28, aged 34, of essential hypertension and cerebral hemorrhage.

Samuel Graham Bay, Santa Monica, Calif.; Ohio Medical University, Columbus, 1898; member of the California Medical Association; formerly passed assistant surgeon, U. S. Public Health Service reserve; served during World War I; on the staff of the Veterans Administration Facility, West Los Angeles, where he died May 18, aged 67, of heart disease and arteriosclerosis.

James S. Bingham, Middlesboro, Ky.; University of Louisville (Ky.) Medical Department, 1885; served three terms as county judge and one term as county court clerk; died in the Pineville Community Hospital, Pineville, May 29, aged 82.

William Purnell Bond, Ruston, La.; Memphis (Tenn.) Hospital Medical College, 1901; member of the Louisiana State Medical Association; died in the Ruston-Lincoln Sanitarium May 5, aged 74, of cerebral embolism.

Stanley James Bown, Richwood, Ohio; Starling Medical College, Columbus, 1898; served as secretary and treasurer of the Union County Medical Society; died May 16, aged 71, of cerebral hemorrhage.

Charles Henry Brush, Kings Park, N. Y.; Fordham University School of Medicine, New York, 1913; first lieutenant

in the medical corps of the U. S. Army during World War I; assistant director, Kings Park State Hospital; died May 29, aged 55, of coronary occlusion.

Edward David Burns, Arlington, Mass.; Tufts College Medical School, Boston, 1936; served an internship at the Carney Hospital, South Boston, and St. John's Hospital, Lowell, and a residency in the Sanatorium Division of the Boston City Hospital; commissioned a first lieutenant in the medical corps reserve on June 15, 1936 and reappointed a captain, Army of the United States, on June 17, 1942; released from service Feb. 25, 1943; died in the Baker Memorial Hospital, Boston, June 19, aged 34.

Oliver Lewellyn Butterick, Toledo, Ohio; University of the City of New York Medical Department, New York, 1887; died May 3, aged 82, of cardiac asthma.

John Joseph Cochran, Natick, Mass.; Harvard Medical School, Boston, 1923; member of the Massachusetts Medical Society; councilor for the Middlesex South District Medical Society; associate examiner, local Selective Service Board number 105; surgeon on the staff of the Leonard Morse Hospital, where he died May 1, aged 47, of bronchopneumonia and bronchial asthma.

Fountain Lee Cook, Independence, Mo.; University Medical College of Kansas City, 1897; member of the Missouri State Medical Association; health officer of Independence; on the staff of the Independence Sanitarium and Hospital; died May 23, aged 80, of acute cardiac dilatation and congestive heart failure.

Fred Sutton Cook, Eau Claire, Wis.; State University of Iowa College of Medicine, Iowa City, 1907; member of the State Medical Society of Wisconsin, died July 4, aged 62, of myelogenous leukemia.

William Bryant Cutts, Providence, R. I.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; member of the Rhode Island Medical Society; fellow of the American College of Surgeons; past president of the Providence Medical Society; during World War I served as a surgeon at the U. S. Army General Hospital at Fort McHenry, Md., with the rank of captain; associate surgeon, Homeopathic Hospital; for many years on the staff of the Rhode Island Hospital, where he died May 24, aged 75.

Homer Jury Davis ♂ Newark, Ohio; Rush Medical College, Chicago, 1904; fellow of the American College of Surgeons; past president of the Licking County Medical Society; member of the board of directors and second vice president of the Ohio Society for Crippled Children; physician for the Licking County Children's Home; chief of staff, Newark City Hospital; surgeon, Pennsylvania and Baltimore and Ohio railroads; died in the Mount Carmel Hospital, Columbus, May 6, aged 67, of perforated duodenal ulcer and peritonitis.

John Woodfin Davis ♂ Tullahoma, Tenn.; University of Tennessee College of Medicine, Memphis, 1935; member of the Medical Association of the State of Alabama; first lieutenant, medical reserve corps, U. S. Army, not on active duty; served as assistant surgeon in the U. S. Public Health Service reserve; died in the University Hospital, Augusta, Ga., May 25, aged 34, of tumor of the spine.

Llewellyn Moore Dykes Sr., Baltimore; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; served during World War I; died in Fort Howard May 18, aged 57, of hematemesis and a blood dyscrasia.

Ray Manier Eaton, Rochester, N. Y.; Albany (N. Y.) Medical College, 1911; member of the Medical Society of the State of New York; served as a medical officer with the British Expeditionary Forces in France during World War I; on the staffs of the Rochester General and Park Avenue hospitals; died May 19, aged 56, of coronary occlusion.

Frederick George Eberhard, Three Rivers, Mich.; Northwestern University Medical School, Chicago, 1912; served an internship at the City and County Hospital, Denver; a captain in the medical corps of the U. S. Army during World War I; author of the "Thirteenth Murder" and other mystery stories; died May 31, aged 55, of cerebral hemorrhage.

Sidney Jacob Eichel, Evansville, Ind.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; member of the Indiana State Medical Association; past president of the Ohio Valley Medical Association; died May 14, aged 67, of myocardial degeneration and cardiac asthma.

Charles M. Eisenbeiss, South Bend, Ind.; Kentucky School of Medicine, Louisville, 1892; at one time postmaster of Elkhart and coroner of Elkhart County; formerly vice

president of the Indiana State Board of Health; died in the Epworth Hospital, May 3, aged 73, of carcinoma of the bladder.

Lorenzo D. Eley, Plymouth, Ind.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; member of the Indiana State Medical Association; formerly health officer and assessor of the county; served as secretary of the county board of health; died May 14, aged 88, of pulmonary edema, chronic myocarditis and pleural effusion.

James Wade Elphinstone, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1901; member of the Medical Society of the State of Pennsylvania; served on the staff of the Allegheny General Hospital; died May 29, aged 66, of coronary occlusion and hypertension.

Charles Engelke ♂ Waterbury, Conn.; Columbia University College of Physicians and Surgeons, New York, 1902; health officer, 1910-1911; since 1904 on the staff of the Waterbury Hospital, where he died May 22, aged 74, of coronary occlusion.

Harry Howard Flagg, Boston; Tufts College Medical School, Boston, 1908; member of the Massachusetts Medical Society; served in France during World War I; on the staffs of the Chelsea Memorial Hospital, Chelsea, and the Lawrence Memorial Hospital, Medford; died May 25, aged 63, of pernicious anemia and uremia.

George Simeon Fultz ♂ Butterworth, Va.; Medical College of Virginia, Richmond, 1906; member of the board of health and Selective Service Board; surgeon for the Seaboard Air Line; on the staff of the Petersburg Hospital, Petersburg; died May 16, aged 66, of coronary thrombosis.

Nathaniel Howland Gifford, Providence, R. I.; Harvard Medical School, Boston, 1903; member of the Rhode Island Medical Society; for many years a member of the consulting staff of Butler Hospital and chief of surgical service at Charles V. Chapin Hospital; on the staff of the Rhode Island Hospital; died in the Jane Brown Memorial Hospital May 25, aged 65, of coronary thrombosis.

Carlos A. Gooch, Oak Hill, W. Va.; University of Louisville (Ky.) Medical Department, 1898; died in a local hospital July 14, aged 69, of heart disease.

Lee E. Grant, Detroit; Kentucky School of Medicine, Louisville, 1902; specialist certified by the American Board of Otolaryngology; served on the staff of the Grace Hospital; died May 31, aged 73.

George Orbin Hall, Murrysville, Pa.; College of Physicians and Surgeons, Baltimore, 1904; died May 10, aged 69, of coronary occlusion.

William Antoine Hall ♂ St. Louis; Marion-Sims College of Medicine, St. Louis, 1893; formerly professor of physiology at the St. Louis College of Physicians and Surgeons; in 1943 was honored by the St. Louis Medical Society in recognition of his completion of fifty years in the practice of medicine; on the staffs of the Bethesda General Hospital and the Missouri Baptist Hospital, where he died May 28, aged 74, of intestinal obstruction.

Albert Henry Hamel ♂ St. Louis; St. Louis Medical College, 1890; an Affiliate Fellow of the American Medical Association; past president of the Missouri State Medical Association and St. Louis Medical Society; served as member and as president of the state board of health; a captain in the medical corps of the U. S. Army during World War I; on the staffs of the Missouri Baptist, Missouri Pacific and the Josephine Heikamp Memorial hospitals; died May 17, aged 77, of coronary thrombosis.

Jabez Peter Hankins, Orange, Va.; Medical College of Virginia, Richmond, 1908; member of the Medical Society of Virginia; served as secretary and president of the Orange County Medical Society; chairman of the Selective Service Board; member of the Orange County Board of Health; died May 7, aged 64, of coronary thrombosis.

James Clinton Hawkins ♂ Coraopolis, Pa.; Western Reserve University School of Medicine, Cleveland, 1915; served as a captain in the medical corps of the U. S. Army during World War I; on the staff of the Sewickley Valley Hospital, where he died May 24, aged 55, of coronary occlusion.

Moses W. Hoge ♂ St. Louis; St. Louis Medical College, 1883; an Affiliate Fellow of the American Medical Association; formerly an instructor in neurology and chief of clinic

for nervous diseases at the Washington University School of Medicine; died in Farmington, Mo., May 5, aged 83, of arteriosclerosis.

Greg Hoskins * Long Beach, Calif.; Cooper Medical College, San Francisco, 1910; served during World War I; president of the Harbor Branch of Long Beach Academy of Medicine; on the staff of the Seaside Hospital, where he died May 10, aged 57, of nephritis.

Carl Adolph Huber * Rochester, N. Y.; College of Physicians and Surgeons, New York, 1894; at one time coroner's physician; served as examining physician for local draft board number 551 for three years; consulting surgeon at the Monroe County Infirmary; member of the board of directors and consulting surgeon at the Park Avenue Hospital, where he died May 31, aged 71, of cerebral hemorrhage.

Robert E. Innis, Marion, Ind.; Eclectic Medical Institute, Cincinnati, 1886; also a pharmacist; died in the Marion General Hospital May 9, aged 83, of coronary occlusion.

Theron Skeels Jackson * Cleveland; Western Reserve University School of Medicine, Cleveland, 1913; fellow of the American College of Surgeons; served in France with the Lakeside Unit as a captain in the medical corps during World War I; served on the staffs of the Huron Road Hospital, East Cleveland, and the Woman's and St. Vincent Charity hospitals; died May 31, aged 58, of coronary disease.

Edward Lyon Sr., Williamsport, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; past president of the Lycoming County Medical Society; veteran of the Spanish-American War; a medical examiner on the draft board during World War I; served as a school director and a member of the city council; on the staff of the Williamsport Hospital; died in the Veterans Administration Facility, Coatesville, May 4, aged 69.

Alberta Helen Murwin Miners, St. Joseph, Mich.; the Hahnemann Medical College and Hospital, Chicago, 1903; died May 6, aged 74, of chronic nephritis.

Arvel R. Ponton * Fort Worth, Texas; University Medical College of Kansas City, Mo., 1906; formerly one of the operators of the Ponton-Brown Hospital, Edinburg, now known as the Grandview Hospital; head of Ponton Clinic; died in the Methodist Hospital April 11, aged 59, of injuries received when his horse fell and rolled over him.

Walter McClellan Smalley, Dayton, Ohio; Fort Wayne College of Medicine, Fort Wayne, Ind., 1889; at one time medical supervisor for the Miami conservancy district; died May 1, aged 82, of heart disease.

Theodore Sureth, Scranton, Pa.; New York Homeopathic Medical College and Hospital, New York, 1893; member of the Medical Society of the State of Pennsylvania; one of the founders and president of the staff of the Hahnemann Hospital; a director of the North Scranton National Bank; died May 6, aged 83, of cerebral hemorrhage due to cardiovascular disease.

Harry Lee Upshaw, Social Circle, Ga.; Emory University School of Medicine, Atlanta, 1915; member of the Medical Association of Georgia; served in France during World War I; for many years local surgeon for the Georgia Railroad; died April 6, aged 50, of cirrhosis of the liver.

Edward Joseph Van Metre, Tipton, Iowa; Rush Medical College, Chicago, 1886; served on the staffs of St. Luke's Methodist Hospital, Cedar Rapids, and University Hospital, Iowa City; surgeon for the Rock Island Railroad; died June 16, aged 83, of hypertensive heart disease and general arteriosclerosis.

De Ver Oram Williams, Durhamville, N. Y.; University of the City of New York Medical Department, New York, 1885; died July 6, aged 81.

John Mill Wright * Grand Rapids, Mich.; Detroit College of Medicine, 1895; at one time instructor at the Grand Rapids Medical College; formerly secretary of the Kent County Medical Society; served as county coroner and as a member of the board of education; chief of staff, Evangeline Home; staff visiting physician, St. Mary's Hospital, where he died April 27, aged 69, of coronary thrombosis.

Oscar Olie Young, Baldwin Park, Calif.; Kansas City (Mo.) Medical College, 1896; served during World War I; major, medical reserve corps, U. S. Army, not on active duty; died in the Veterans Administration Facility, West Los Angeles, April 9, aged 75, of retroperitoneal fibrosarcoma with generalized metastases and bronchopneumonia.

DIED WHILE IN MILITARY SERVICE

Martin Batts Jr., Grand Rapids, Mich.; University of Michigan Medical School, Ann Arbor, 1933; member of the Michigan State Medical Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served an internship and later residency in surgery and orthopedics at the University of Michigan Hospital, Ann Arbor; formerly fellow in surgery at the Mayo Foundation, Rochester, Minn.; served on the consulting staff of St. Mary's Hospital and on the staffs of the Butterworth and Blodgett Memorial hospitals; commissioned a captain in the medical corps of the Army of the United States on July 30, 1942; later promoted to major; died in the Percy Jones General Hospital, Battle Creek, July 8, aged 36, of acute myelogenous leukemia.

Merrick Roblee Breck * Chicago; Rush Medical College, Chicago, 1924; served an internship at the Kings County Hospital, Brooklyn; on the attending staff of the Ravenswood Hospital; formerly on the staff of the Atchison, Topeka and Santa Fe Railroad Hospital, La Junta, Colo.; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on Dec. 3, 1931; subsequently promoted to captain, major and lieutenant colonel; drowned in New Guinea June 9, aged 44.

William Elijah Moore Devers * Colonel, M. C., U. S. Army, Cowles, Neb.; University of Illinois College of Medicine, Chicago, 1914; U. S. Army Medical School, 1921; hospital apprentice, first class, in the U. S. Navy from May 12, 1905 to May 24, 1909; second lieutenant, Fourth Infantry, South Dakota National Guard in 1909; first lieutenant and battalion adjutant from August 1911 to June 1914; served during World War I; entered the medical corps of the U. S. Army as a captain in 1920, promoted to major in 1929, a lieutenant colonel in 1937 and later a colonel; died in the Army and Navy General Hospital, Hot Springs National Park, Ark., March 30, aged 59, of carcinoma of the stomach.

William Francis Drew, San Francisco; Stanford University School of Medicine, San Francisco, 1941; served an internship at the San Francisco Hospital; fellow in internal medicine at the Cleveland Clinic Foundation Hospital, Cleveland; commissioned a first lieutenant in the medical corps, Army of the United States, March 10, 1942; died in the North African area May 23, aged 29, of fractured skull received in a fall.

Chapman Q. Dykes, Haines City, Fla.; Emory University School of Medicine, Atlanta, Ga., 1916; member of the Florida Medical Association; past president of the Franklin-Gulf Counties Medical Society; formerly associated with the U. S. Public Health Service; commissioned a captain in the medical corps, Army of the United States, on Aug. 20, 1942 and began active duty on Sept. 4, 1942; later promoted to major; died in Camp Davis, N. C., May 3, aged 51, of cerebral hemorrhage, pulmonary edema and heart disease.

Lewis Jennings Geerlings, Fremont, Mich.; Rush Medical College, Chicago, 1933; completed an internship at the Presbyterian Hospital, Chicago; member of the Michigan State Medical Society; served as president of the Newaygo County Medical Society; began active duty as a first lieutenant in the medical corps, Army of the United States, on May 16, 1942; later promoted to captain; a flight surgeon in the air corps; killed in an airplane crash while on a routine flight from one air base to another at Corsica, May 10, aged 36.

Charles David Horn, Baltimore; Harvard Medical School, Boston, 1941; served an internship and residency at the Sinai Hospital; commissioned a first lieutenant in the medical corps, Army of the United States, on Sept. 24, 1942; died Aug. 11, 1943, aged 26, of a broken neck received in a motor vehicle accident.

Jack Kinell, Houston, Texas; University of Kansas School of Medicine, Kansas City, 1936; member of the State Medical Association of Texas; served an internship in the City Hospital, Cleveland, and a fellowship in internal medicine at the Cleveland Clinic Foundation Hospital; commissioned a lieutenant (jg) U. S. Naval Reserve on March 21, 1942 and began active duty on April 19, 1942; promoted to lieutenant March 1, 1943; served for twenty months in the South Pacific; died in the Naval Air-Station at Corpus Christi April 15, aged 31.

Bureau of Investigation

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

Following are abstracts of stipulations in which promoters of "patent medicines," medical devices and cosmetics have agreed, following action by the Federal Trade Commission, to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products.

Bio-Mineral—Michel Manteris and George Aristotle, who put out this product under the firm name Bio-Mineral Products Company, Detroit, stipulated with the Federal Trade Commission in August 1943 that they would discontinue the following advertising misrepresentations. That this product is an adequate or dependable remedy, treatment or relief for a number of ailments including tuberculosis, cancer, heart disease, goiter, infantile paralysis, arthritis and sciatica; that Bio-Mineral contains an effective amount of any mineral recognized by medical science as a preventive of, or treatment for, any of the disorders that the promoters mention, or that the preparation is drugless and that its use will assure health, that it will aid in restoring a ruined weak or sick body, or be of benefit in anemic conditions, except such as result from uncomplicated iron deficiency, that it will have a general tonic effect on the body or be a body builder, that it is rich in minerals or contains a significant amount of any mineral other than iron.

Blis-To-Sol—This is a product of the Central Pharmacy, Inc., trading as Blis-To-Sol Company, Fitzgerald, Ga. In June 1943 the concern entered into a stipulation with the Federal Trade Commission, agreeing to cease representing that the preparation is a cure or remedy for eczema, poison oak or poison ivy, or that it has any value in the treatment thereof, in excess of affording relief from the symptoms of itching.

"Complete Guide for the Deafened"—In June 1943 one Benjamin H. Levine, trading as Harvest House, New York, which distributes this book, entered into a stipulation with the Federal Trade Commission in which he agreed to cease representing that the work contains directions of such nature that merely by following them the sense of hearing will be improved, saved or restored, or that it contains directions of such nature that they can be followed without assistance or direction by a person in the treatment of defective voice or speech. Levine further agreed not to publish or cause to be published any advertisement for the book which might fail to reveal that the volume refers the reader to other sources of information and guidance, as well as to mechanical aids for many of the improvements and for advice as to procedures to be followed in the treatment of deafness.

Grobowski Nostrums—These are put out by Albert G. Grobowski and Company, Plymouth, Pa., which concern in July 1943 stipulated with the Federal Trade Commission to discontinue any advertisement which failed to reveal that the use of "Grobowski's Headache Powders" may cause collapse, that repeated doses may cause dependence on the drug, that not more than two powders should be taken within 24 hours, and that the preparation should not be given to children, that repeated use of "Grobowski's Nasal Jelly" by aged or debilitated persons or by infants may produce oil injury in the lungs, and that this nostrum should not be used by persons having heart disease or high blood pressure, that "Grobowski's Jadol" is a laxative and should not be taken in the presence of nausea, vomiting, abdominal pains or other symptoms of appendicitis, that frequent use of either "Nervotone" or "Grobowski's Preparation 'C'" may result in mental derangement or cause skin eruption, that "Grobowski's Powders for Round Worms" contain a laxative and should not be taken when symptoms of appendicitis are present, or used in excess of the recommended dosage, that castor oil or foods or other preparations containing oil or fat should not be used while such powders are being taken, and that the prescribed dose should not be used if there is discharge from the ear or if the ear drum is punctured or perforated, and that "Grobowski's Reviva Powders" and "Eguterro" are laxatives and should not be taken when symptoms of appendicitis are observed. The stipulation provided, however, that the statement, "Caution: Use only as directed" would be a sufficient warning in the advertising if the label contained adequate and specific warning as to the potential danger to health.

Hudson Specialties Company's Sun Lamps—The Hudson concern's name is a trade style used by one Hugo Gernsback of New York, who, in addition to being a publisher, engages in the sale of various electrical and mechanical devices. His lamps, of the carbon arc variety, were supplied to him by manufacturers in Philadelphia and New York. In July 1943 Gernsback stipulated with the Federal Trade Commission to discontinue the following advertising misrepresentations. That the rays produced by his ultraviolet lamp will improve glandular action, give the body nutrition or keep one healthy, that the device should properly be designated "sun lamp," that the use of infrared lamps will be an effective means of toning up the system and helping to throw off certain body ailments, or that their use will help nature in its curative powers by forming

heat units in the blood, or be of any therapeutic value except as means to supply heat, and then only when heat is not contraindicated. Gernsback further agreed to discontinue any advertising representations which failed to reveal that use of the device in certain contraindicated conditions may result in serious injury to health, and that there is potential danger in the improper use of these. It was provided, however, that if appropriate warnings to this effect are given on the label, the advertising need contain only the statement "Caution: Use only as directed."

Polanka and Zielanka—These preparations are put out by Bol-Jaw Rosalak and Zenobia Rosalak, trading as Belvedere Products, New York. In July 1943 they stipulated with the Federal Trade Commission that they would discontinue the following advertising misrepresentations. That Polanka will aid the digestive system, regulate the stomach, provide relief for digestive disturbances generally, or have any value other than that of temporarily relieving constipation, that Zielanka will relieve rheumatic, arthritic or muscular pains, be an adequate treatment or effective remedy for such conditions, or offer any value other than that of temporarily relieving constipation. Further, they agreed to discontinue any advertisement which represented that use of either of the preparations is safe, or which failed to reveal the potential danger in their use in the presence of abdominal pains, nausea or other symptoms of appendicitis, provided, however, that if the directions for use given on the label contain an adequate warning of their potential danger, such advertisement need contain only the statement "Caution: Use only as directed."

R-Q—In July 1943 the Federal Trade Commission accepted a stipulation from R. Q. Howe, trading as R. Q. Laboratories, Alhambra, Calif. In this he agreed to discontinue the following advertising misrepresentations. That R. Q. is a remedy or cure for eczema, poison oak or poison ivy, or a treatment for such conditions aside from affording relief from itching, that it is a treatment for skin infections, without specifying the conditions for which it supposedly has therapeutic value, and that it is a remedy or cure for ringworm, unless it is explained that the product will not destroy deep seated ringworm infections. Howe further agreed to cease representing, through use of the word "Laboratories" in his trade name, that he maintains or operates a laboratory, and to discontinue any advertisements which failed to reveal that his nostrum may produce skin irritations and that its use should be discontinued as soon as irritation appears. This warning, however, the stipulation permitted him to omit from his advertisements, provided they included the statement, "Caution: Use only as directed" when the same warning appeared on the labels.

Superior Bath Cabinet—In July 1943 the Cabinet Manufacturing Company, Quincy, Ill., and the Mace Advertising Agency, Inc., Peoria, Ill., stipulated with the Federal Trade Commission that they would cease representing that this cabinet is safe, economical or effective in reducing weight, that it will help to build or maintain resistance against disease, that the use of it tones the skin, restores a rosy flush to sallow skin, purges the pores, stimulates the sebaceous glands and removes impurities from the sweat glands, that it supplies the tissues with new blood and removes toxic substances from the blood stream, that it relieves lumbago, neuralgia, rheumatism and muscle soreness and headaches, breaks up or helps to forestall colds, la grippe and influenza, aids impaired kidney functions, brings relaxation or helps prevent insomnia or nerves. The respondents further agreed to discontinue any advertisements which failed to reveal that there is danger of accidental burn in using the device as directed, that care should be exercised to prevent injury and someone should be in attendance while the cabinet is being used to provide a steam heat bath, a dry heat sweat bath, or as a source of infrared heat, and that exposure to the heat rays may result in a skin burn. The stipulation provided, however, that the statement, "Caution: Use only as directed" would be a sufficient warning in the advertisements if the directions accompanying the cabinet contain a statement to this same effect.

Supertan Ultra-Violet Ray Sun Lamps—The Ultra Violet Ray Laboratories, Inc., New York, represented in their advertising that these devices were genuine sun lamps and that the radiation that they produced was "the same as in natural sunlight," that a report on carbon arc lamps by the United States Bureau of Standards confirmed the corporation's claim that its lamps "produce the closest duplication of natural sunshine of any known artificial source of energy," and that the lamps, by means of their radiation, would be beneficial to "rashy, pimply skins," certain forms of anemia, deficiency diseases due to lack of vitamins except vitamin D, tuberculosis of the bones, joints and glands, sinus infections, ulcers, wounds, sore throat, tonsillitis, neuritis and certain skin disorders. In a stipulation that the concern signed with the Federal Trade Commission in June 1943, it agreed to discontinue these misrepresentations and to cease disseminating any advertisement that failed to reveal that excessive exposure to the lamp might result in severe sunburn, and that the device should not be used in cases of pellagra, lupus erythematosus, certain types of eczema, burns and sunburn, and should never be employed unless goggles are worn to protect the eyes. It was provided, however, that if the directions for use of the lamps appear on the label and carry an adequate warning of their potential danger to health, such advertisement need simply warn "Caution: Use only as directed."

Vita Brush—This is an electrically driven device for use on the hair and scalp, and is put out by the Hershey Manufacturing Company of Chicago, whose advertising is handled by George J. Kirkgasser and Leslie A. Drew, trading as Kirkgasser Drew. In June 1943 both concerns stipulated with the Federal Trade Commission that they would cease representing that the device will check or prevent falling hair or baldness, restore life to dead hair or prevent or ward off dandruff, that it is the secret of healthy hair, is the answer to hair worries or effective for headaches of a circulatory origin, that it has any effect in the treatment or prevention of head colds or congestion, will relieve nervous insomnia, insure a good night's sleep, or cause the hair to grow thicker.

Correspondence

BENIGN AND MALIGNANT TUMORS OF THE FOOT

MACROCYTIC ANEMIA OF PREGNANCY

To the Editor:—The rare macrocytic anemia of pregnancy is a serious and incompletely understood disease. Some writers have considered it a form of pernicious anemia, but most observers have been impressed particularly by its resemblance to the hemolytic anemias. My purpose in this communication is to report some recent observations of mine which suggest a plausible explanation for the pathogenesis of this disease.

Long ago Ottenberg and Thalheimer (*J. M. Research* 33:213, 1915) in transfusion experiments on cats observed that, while the first transfusions were well tolerated, when the transfusions were repeated the recipients eventually developed acute hemolytic reactions followed by a severe erythroblastic anemia. Similarly, in human Rh negative patients who have become sensitized to the Rh factor it has been observed that transfusions of Rh positive blood not only fail to produce a rise in hemoglobin but may cause acute hemolytic transfusion reactions followed by an abrupt drop in hemoglobin (Wiener, A. S., and Peters, H. R.: *Ann. Int. Med.* 13:2306 [June] 1940. Wiener, A. S.: *Arch. Path.* 32:227 [Aug.] 1941). These observations can be explained as follows: The blood of every one contains, in addition to the agglutinogens characterizing the individual, one or more agglutinogens shared by all members of the species. Ordinarily an individual does not become immunized or sensitized against antigens contained in his own body, but under certain conditions this principle of "horror autotoxicus" of Ehrlich breaks down. For example, when the sensitized Rh negative patient is given Rh positive blood, he breaks the blood cells down. Then the body in disposing of the broken down cells may occasionally become sensitized to the common species antigens contained in the stroma. The resulting antibodies have the properties of reacting not only with the blood of other individuals of the species but also with the patient's own blood cells (i. e. they are autoantibodies) for the reason that the antigen in question is common to all members of the species. The antibodies then act on the patient's own cells, and a hemolytic anemia results. At times the patient's own broken down cells sensitize him further with resulting continued hemolysis, and unless this vicious cycle is broken death will result.

By extending this principle of "autoimmunization" by transfusion to pregnancy, just as isoimmunization by transfusion was extended to explain transfusion reactions in pregnancy, one arrives at a rather attractive explanation for the macrocytic anemias of pregnancy. If an Rh negative mother becomes oversensitized to the fetus's Rh positive cells, she may also form antibodies to one or more of the common species antigens, and an acute hemolytic anemia could result. In support of this hypothesis may be cited the following clinical facts (Whitby, L. E. H., and Britton, C. J. C.: *Disorders of the blood*, ed. 4, Philadelphia, Blakiston Company, 1942, p. 244): The disease begins rather abruptly between the sixth and eight months with serious symptoms of anemia and jaundice and other signs of hemolysis. The majority of cases have occurred in multiparas, and there is a tendency to recurrence in future pregnancies. Moreover, most authorities agree with Evans, who says that the anemia, once established, tends to recur in later pregnancies at an earlier date and grows progressively more severe with each pregnancy. These data are strongly reminiscent of erythroblastosis fetalis, and it is very striking that 3 cases that I saw recently all proved to be Rh negative.

Because of the rarity of the disease, it is naturally difficult to compile a large series in a short time. However, these limited findings are so strongly suggestive that it seemed worth while to report them at this time.

A. S. WIENER, M.D., Brooklyn.

To the Editor:—In commenting on the article by Dr. George V. Kulchar on the treatment of hemangiomas in his article on "Benign and Malignant Tumors of the Foot," which appeared in *THE JOURNAL*, March 18, Dr. C. Russell Anderson (*ibid.*, May 27, p. 302) makes statements that should not go unchallenged.

According to dermatologic opinion, although many such tumors may regress spontaneously, others may grow to unmanageable size and cause considerable disfigurement. If they do regress, residuals may remain. In 1 case of my experience on the head of a child a lesion the size of a finger nail remained untreated and at the end of a year was as large as a grapefruit and required four surgical procedures finally to reduce its blood supply, which at that time was enormous and was sufficient to cause hypertrophy of the child's heart. I would have been derelict in my duty had I advised the family not to have treatment, and it is my contention that early treatment of these cases is by far better than risking the changes brought about by delay.

It is my considered opinion that all angiomas sensitive to radiation should be treated from the day they are discovered if they show any tendency to grow.

MERLIN T-R. MAYNARD, M.D., San Jose, Calif.

TONSILLECTOMY IN POLIOMYELITIS

To the Editor:—The statement in the editorial in *THE JOURNAL*, July 8, that "the discrepancy in the statistics of Page and those of Stillerman and Fischer and of Aycock and others is no doubt due to the method of investigation" is somewhat misleading.

No one has claimed that tonsillectomy is frequently followed by poliomyelitis, nor has any one claimed that poliomyelitis is frequently preceded by tonsillectomy (figures collected to date show that bulbar poliomyelitis following tonsillectomy by an interval corresponding to the incubation period of the disease comprises about 1 per cent of all reported cases of the disease). Tonsillectomy is a common procedure and poliomyelitis a relatively rare occurrence. Page's finding of 1 case following 8,915 tonsillectomies would appear to be entirely consistent with the now generally accepted view that the avoidance of tonsillectomy during prevalence of poliomyelitis prevents the occurrence of numbers of cases of an extremely distressing and highly fatal form of the disease.

To be sure, large numbers of tonsillectomies must be avoided in order to prevent small numbers of cases. But it is the one preventive measure that can be used with assurance in poliomyelitis.

W. LLOYD AYCOCK, M.D., Boston.

ESTROGENIC SUBSTANCES

To the Editor:—Dr. H. Sheridan Baketel of Reed & Carnrick points out to me that the manner in which the table accompanying my article on the Clinical Use of Ovarian Extracts appearing in the May 6th issue puts one of its preparations in an unfavorable light. It implies that "Estrogenic Substances, R. & C." are made up as vaginal suppositories. Actually, this preparation is used only for oral and parenteral administration. I am sorry that this error was made, and if it is possible for you to insert a short erratum making this correction it would be appreciated both by the firm concerned and by me.

C. F. FLUHMAN, M.D., San Francisco.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Right of Board to Refuse to Reinstatement License Canceled for Failure of Licentiate to Pay Annual Renewal Fee.—Fischwenger was licensed after examination to practice dentistry in Florida in 1925 and as required by law renewed his license, paying the required annual renewal fees, annually thereafter in 1926 and 1927. In the latter year he left Florida, practiced elsewhere and never thereafter renewed his license in Florida. The law then in effect in Florida required each licentiate to renew his license annually, paying the required annual renewal fee prior to January 1, and provided for the automatic cancellation of a license if the licentiate failed to secure a renewal of his license prior to three months after December 31 each year. The law also provided, however, that a license that had been automatically canceled for this reason could be reinstated on application and the payment to the board of \$25. Fischwenger's license was canceled in 1928 for his failure to renew it. In 1941 an entirely new dental practice act was enacted in Florida (Laws, 1941, chapter 20240) repealing the previous dental practice acts and requiring in section 17 thereof that every licentiate renew his license annually on or before October 1. The new law provided for the automatic cancellation of a license of any licentiate who had failed to renew his license by December 31. The new act likewise contained a provision authorizing the renewal of the license automatically canceled on the payment to the board by the licentiate of \$25. Section 18 of the new act provided also

Upon the failure of any dentist to pay the annual renewal fee provided for in section 17 within two months after September thirtieth, the board shall notify in writing such dentist that such fees have not been paid, a second of such notices shall be sent to the board at the end of the fourth month, at the end of the fifth month after September thirtieth, if such fees remain unpaid, the board shall notify the delinquent by registered mail with return receipt attached that upon failure to apply for renewal certificate and to pay the required fees within the time specified in section 17 the delinquent must submit to an examination.

In 1943 Fischwenger applied to the board of dental examiners to have his license renewed without examination and tendered \$25. The board refused to renew the license previously canceled on the ground that, since Fischwenger had forfeited his privilege to practice in Florida by not keeping his license in force from year to year as required by law, he could not be restored to practice except on condition that he submit to a new examination. Fischwenger then brought mandamus against the individual members of the board to compel them to issue a renewal certificate to him to practice dentistry. From an order in favor of the defendant members of the board, Fischwenger appealed to the Supreme Court of Florida, Division B.

Fischwenger contended that one who has once been granted a license to practice dentistry under any dental law in force in Florida at the time of his admission to practice is privileged to renew that license at any time thereafter and without examination on the payment of \$25, unless prior to payment he has been served with notice by the board that unless such fees are paid within a certain specified time he will be required to take another examination as a condition to renewal, and the time prescribed by the notice has expired. We think, said the Supreme Court, that Fischwenger has misconceived the effect and intent of the provisions of the 1941 dental practice act referred to. The 1941 act, being an act comprehending the whole subject matter of the prior laws operated as a repeal of the earlier statutes to the extent that it revised or substituted new provisions therefor. By the terms of section 2 of the new act the privilege of practicing dentistry in the state of Florida was limited, after its passage, to those who were duly licensed and registered dentists under the laws of Florida at the time of the passage of the statute and to those who subsequently became duly licensed and registered as dentists pursuant to its provisions. The language of sections 17 and 18 of the statute has reference only to those persons falling within one or the other of the classes of persons described in section 2 of the 1941 act, it has no application to those persons who fall in any

other class. The only persons to whom the board is required to send delinquency notices under section 18 are those who were duly licensed and registered dentists under the laws of Florida at the time of the passage of the statute and who thereafter became delinquent, and those who, having subsequently become duly licensed and registered dentists under the 1941 law, thereafter fail to secure their annual renewal certificates within the time and manner prescribed by the statute. Fischwenger was in neither category. For it is clear that, immediately prior to the time the 1941 act became law, Fischwenger was not entitled to practice dentistry in the state, having forfeited that privilege by his failure to keep his license in force in accordance with the prevailing applicable statutes. At the time the 1941 act became effective his license to practice had long since expired by the limitations fixed by previous statutes in force at the time of its passage, and his right thereafter again to take up his profession in this state was subject to the conditions imposed by the new statute. The practice of dentistry in Florida is not an absolute unqualified or vested right but is a privilege that may be exercised only in subordination to the police power of the state. It may be controlled and regulated by the legislature in the exercise of the police power. When conflicts occur between the right of the citizen to follow such profession and the right of the state to preserve the general health and welfare, the right of the citizen in the matter must yield to the power of the state to prescribe such reasonable restrictions and regulations as may be necessary to protect the people from ignorance, incapacity, deception or fraud. Whatever may have been the conditions prescribed by the law prior to 1941 for continuing in the practice of dentistry, they did not prevent the state, at any time that the public good demanded, from making such further regulations and restrictions as to practice as the legislative authority deemed necessary or proper in the public welfare, so long as such further restrictions and regulations were reasonable and bore some just relation to the matter sought to be regulated. For reasons which were deemed sufficient by the legislature, the 1941 act was passed superseding previous statutes on the same subject and imposing new and more rigid requirements as a condition to continuation in practice. The statute abolished the privilege theretofore granted to delinquent dentists under the prior statutes to reinstate their licenses at any time without taking an examination. It is clearly within the authority granted to the state board of dental examiners by the legislature to require of Fischwenger an examination as a preliminary condition to the issuance of a renewal certificate. The decree in favor of the board of dental examiners was accordingly affirmed—*Fischwenger v. York*, 18 So. (2d) 8 (Fla., 1944).

Society Proceedings

COMING MEETINGS

- Aero Medical Association of the United States, St. Louis, Sept. 4-6. Dr. David S. Brachman, 5440 Cass Ave., Detroit 2, Secretary.
American Congress of Physical Therapy, Cleveland, Sept. 6-9. Dr. Richard Kovacs, 2 East 88th St., New York 28, Secretary.
American Pediatric Society, Atlantic City, N. J., Sept. 25-27. Dr. Hugh McCulloch, 325 N. Euclid Ave., St. Louis 8, Secretary.
American Roentgen Ray Society, Chicago, Sept. 24-29. Dr. H. Dabney Kerr, University Hospitals, Iowa City, Secretary.
Colorado State Medical Society, Denver, Sept. 27-29. Dr. John S. Bouslog, 537 Republic Bldg., Denver 2, Secretary.
Delaware Medical Society of, Lewes, Sept. 11-12. Dr. W. O. La Motte, 601 Delaware Avenue, Wilmington, Secretary.
Kentucky State Medical Association, Lexington, September 18-20. Dr. P. E. Blackberry, 620 S. Third St., Louisville, Secretary.
Michigan State Medical Society, Grand Rapids, Sept. 27-29. Dr. I. Fernald Foster, 2020 Olds Tower, Lansing, Secretary.
Mississippi Valley Medical Society, Peoria, Ill., Sept. 27-28. Dr. Harold Swenberg, 310 Maine St., Quincy, Ill., Secretary.
National Medical Association, St. Louis, Aug. 14-17. Dr. John T. Givens, 1108 Church St., Norfolk, Va., Secretary.
Northern Minnesota Medical Association, Hillman, Aug. 26. Dr. R. N. Jones, 8 Sixth Ave. N., St. Cloud, Secretary.
Oregon State Medical Society, Portland, Sept. 2-3. Dr. Thomas D. Robertson, St. Vincent's Hospital, Portland, Secretary.
Pennsylvania Medical Society of the State of Pittsburgh, Sept. 19-21. Dr. Walter I. Donaldson, 300 Penn. Ave., Pittsburgh 22, Secretary.
Ridgely Medical Society of North America, Chicago, Sept. 24-25. Dr. Donald S. Childs, 607 Medical Arts Bldg., Chicago, Secretary.
Utah State Medical Association, Salt Lake City, August 24-26. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.
Wisconsin State Medical Society, Milwaukee, Sept. 18-20. Mr. Charles H. Crownhart, 110 E. Main St., Milwaukee 3, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

13:333-380 (May) 1944

Unusual Kidney Calcification. J. U. Reaves.—p. 333.

Sterility: Study with Uterotubal Insufflation Apparatus: A Few Male

Faults Mentioned. G. F. Douglas.—p. 336.

Early Infant Care. C. K. Pitt.—p. 344.

Health Department and General Practitioner. J. E. Dunn.—p. 346.

American Journal of Hygiene, Baltimore

39:269-432 (May) 1944

*Primary Atypical Pneumonia, Etiology Unknown (Part III). J. H.

Dingle, T. J. Abernethy, G. F. Badger, G. J. Buddingh, A. E. Feller,

A. D. Langmuir, J. M. Ruegger and W. B. Wood Jr.—p. 269.

Jaundice in Army Personnel in Western Region of United States and

Its Relation to Vaccination Against Yellow Fever (Part I). W. A.

Sawyer, K. F. Meyer, M. D. Eaton, J. H. Bauer, P. Putnam and

F. F. Schwenker.—p. 337.

Primary Atypical Pneumonia, Etiology Unknown.—

Bacteriologic studies by Dingle and his collaborators at Camp Claiborne failed to reveal the etiology of this disease. In the routine cultures of the throats and sputums of patients with atypical pneumonia no bacterium stood out as a probable etiologic agent by reason of its occurrence or predominance. Evidence has not been obtained that fungi or rickettsias are etiologically associated with atypical pneumonia. The data obtained from anaerobic cultures are probably not sufficiently conclusive to exclude definitely the anaerobic bacteria. The results of the virus studies have provided interesting information regarding the probable distribution of some of the known viruses but have not indicated any one of them as the cause of atypical pneumonia. The data tend to exclude the viruses of influenza and the members of the psittacosis or ornithosis group (psittacosis, meningopneumonitis, lymphogranuloma inguinale). The syndrome was characterized by gradual onset, mild symptoms referable to the upper respiratory tract, distressing cough and moderately severe constitutional reaction. The character of the onset corresponded to that reported by others and differed from that of influenza and the bacterial pneumonias. Although few of the patients appeared as ill as patients with pneumococcal pneumonia, recovery from atypical pneumonia was more protracted. The average period of hospitalization was slightly longer than one month. Atypical pneumonia is one of the most important respiratory infections from the point of view of time lost from training. Atypical pneumonia was first recognized at Camp Claiborne during the course of a moderate epidemic. The disease probably had existed at the camp prior to this outbreak. Subsequent to the epidemic, the diagnosis was made with sufficient frequency to establish atypical pneumonia as one of the endemic respiratory illnesses. The high attack rate among the personnel of the station hospital is in agreement with the findings of other investigators, who observed a high incidence among physicians and nurses. The disease has been considered to be particularly common in adolescent and young adult white males, although the evidence for this cannot be considered conclusive. Almost all reports have emanated from institutions with young adult populations. Better opportunities for recognition of the disease and greater chances for close and repeated contacts in such institutions may explain these findings. In the few reports from general hospitals serving a more diverse population, cases have occurred in all age groups from childhood to advanced age, regardless of sex and race.

American J. Obstetrics and Gynecology, St. Louis

47:593-740 (May) 1944

Observations on Hormonal Content of Ovarian Cysts Associated with Pregnancy. Ruth M. Watts and F. L. Adair.—p. 593.

*Endometriosis and Pregnancy: With Report of 2 Cases. R. B. Scott.—p. 608.

Caudal Analgesia: Experimental and Anatomic Study. Virginia Singleton Lanier, H. E. McKnight and Mildred Trotter.—p. 633.

Treatment of Prothrombinopenia with Water Soluble Menadiolone. H. R. Litchfield, H. M. Rabinowitz, P. Kavetsky, M. J. Greene and Elsie Kaye.—p. 642.

*Study of Use of Diethylstilbestrol in Inhibition and Suppression of Lactation. J. W. Walsh and W. B. Stromme.—p. 655.

Absorption of Steroid Hormones from Oral Mucous Membranes, with Special Reference to Sublingual Administration of Progesterone. G. W. Corner Jr.—p. 670.

Experience with Supravaginal Extraperitoneal Cesarean Section (Waters Operation). I. Daichman and W. Pomerance.—p. 678.

Pain Threshold in Dysmenorrhea. J. O. Haman.—p. 686.

Dimethyl-Ether Stilbestrol in Menopause and for Suppression of Lactation. O. H. Bloom.—p. 692.

Prolongation of Pregnancy and Excessive Fetal Development Following Administration of Corpus Luteum Extract in Treatment of Threatened Abortion. D. P. Murphy.—p. 697.

Spinal Anesthesia to Favor Rapid Dilatation of Cervix in Obstetric Emergencies: Preliminary Report. S. S. Rosenfeld.—p. 699.

Pregnancy at Term in Prolapsed Uterus with Prolapse of Cord. I. Kibel.—p. 703.

Case of Pseudohermaphroditism Feminus Externus with Uterus Didelphys, Imperforate Anus and Vagina. I. Siegel.—p. 705.

Tubal Pregnancy in Tuberculous Fallopian Tube. B. Mann and D. R. Meranze.—p. 707.

Successful Bronchoscopy for Atelectasis in 6 Hour Old Infant. D. D. Deeds and H. E. Bozer.—p. 711.

Endometriosis and Pregnancy.—Two patients with endometrial cysts complicating pregnancy were recently operated on at Johns Hopkins Hospital. The first patient, a 25 year old primigravida, was known to have an ovarian cyst early in pregnancy. She underwent an exploratory laparotomy at thirty-six weeks because of severe right lower quadrant pain. A ruptured right endometrial cyst and a left endometrial cyst were found. A 2,280 Gm. girl was delivered by cesarean section, and a subtotal hysterectomy, bilateral salpingo-oophorocystectomy, and appendectomy were done. The patient had six years of sterility, but she stated that she did not have dysmenorrhea, abnormal uterine bleeding, lower abdominal pains or other symptoms commonly associated with endometriosis. The probable cause of the rupture of this endometrial cyst was that the cyst was adherent to the uterus and, as the uterus enlarged, the adherent areas of the cyst thinned out until they became separated, allowing the contents of the cyst to escape. The second patient was a 23 year old woman who had a grapefruit sized endometrial cyst of the right ovary removed and a small endometrial cyst resected from the left ovary when ten to twelve weeks pregnant. The patient experienced lower abdominal discomfort for about one month before operation. She subsequently delivered a 2,390 Gm. boy in good condition during the thirty-fifth week of the pregnancy, and the placenta showed a small area of premature separation. The patient had no symptoms of endometriosis prior to the pregnancy. She had been married two years, and no contraception had been practiced. The sterility rate is high in patients with endometriosis, but the collected series of internal and external endometriosis cases complicating pregnancy is evidence enough that such patients can and do become pregnant. This fact should enhance the plea that, when the patient desires preservation of the child-bearing function, one should be conservative in the surgical procedure. Internal endometriosis (adenomyoma or adenomyosis) may cause an asymmetry of the uterus indistinguishable from myomatous changes or from a cornual pregnancy and may cause spontaneous rupture in pregnancy or may be the factor for uterine perforation at the time of therapeutic or criminal abortion. Internal endometriosis has caused uterine atony and postpartum hemorrhage. The tumor mass may cause dystocia. There is evidence that this type of endometriosis is an element in spontaneous abortions and miscarriages, ectopic pregnancies and placenta previa. External endometriosis complicating pregnancy is most commonly found in the cul-de-sac of Douglas. Ovarian endometriosis is the second most commonly reported type found during pregnancy. An ovarian cyst may be palpated, but unless there are complaints suggesting endometriosis the

fact that the cyst is endometrial will probably escape notice. The cyst may produce symptoms because of occasional leaking produced by increased countertension by the enlarging uterus on an already tense cyst.

Diethylstilbestrol in Inhibition of Lactation.—Walsh and Stronme report 190 cases in which breast feeding was either not desired by the woman or was contraindicated because of a dead baby, premature baby, flat or inverted nipples, heart disease, previous breast abscess, syphilis, tuberculosis or other conditions. Diethylstilbestrol was highly effective in preventing the development and minimizing the intensity of breast pain. Engorgement was reduced in incidence to one-third that of the controls; it was less intense and developed later in the puerperium. Lactation, while frequently delayed in onset, was definitely though less noticeably depressed than were the other features studied. Erythema was found in but one third the number of diethylstilbestrol treated cases, compared with controls. Fevers associated with breast engorgement occurred in approximately the same number of cases in each group. Entire freedom from breast pain and engorgement in the diethylstilbestrol treated series was striking in contrast with the control series. Conventional therapeutic measures were found to be of little benefit save in the partial reduction of lactation. Separate control studies on the therapeutic effect of diethylstilbestrol, once lactation had been established, showed that the treatment held but slight advantage in the relief of breast pain; that relief from engorgement and subsidence of lactation was definitely though not greatly bettered.

American Journal of Surgery, New York

64:149-296 (May) 1944

- *Resuscitation of Heart. R. F. Barber and J. L. Madden.—p. 151.
- Osteoplastic Procedure for Correction of Funnel Chest. R. Nissen.—p. 169.
- Syphilis and Pregnancy. W. T. Daily.—p. 175.
- Epidural Injection Therapy for Sciatic Pain. H. Kelman.—p. 183.
- Trauma of Thorax: Collective Review. H. H. Ritter and B. B. Kaye.—p. 191.
- Traumatic Rupture of Gastrointestinal Tract by Nonpenetrating Forces. N. F. Hicken and J. H. Carlquist.—p. 209.
- Hepatocholecystenterostomy for Relief of Jaundice in Obliteration of Hepatic Ducts. R. F. Carter and B. Marraffino.—p. 217.
- *Evaluation of Sulfonamides in Treatment of Peritonitis of Appendical Origin: A Review of 903 Cases of Acute Perforative Appendicitis. C. E. Stafford, J. Beswick and P. H. Deeb.—p. 227.
- Kidney Surgery: Review of Cases at Southern Pacific General Hospital from 1930 to 1943. Charles P. Mathé and Manuel J. de Castillo.—p. 235.
- Outlook on Carcinoma of Stomach. M. J. Thorstad.—p. 242.
- Osteogenic Osteolytic Sarcoma of the Os Pubis. S. T. Friedman.—p. 248.
- Operative Position for Ulnar Nerve Transposition. M. Dobelle and S. E. Proctor.—p. 254.
- *Occlusion of Infected Patent Ductus Arteriosus with Cellophane. F. R. Harper and M. E. Robinson.—p. 294.

Resuscitation of Heart.—Barber and Madden state that if cardiac massage is performed before irreparable changes have occurred and if artificial respiration is maintained, recovery should occur. The percentage of complete recovery will vary in direct ratio to the time interval between cardiac stoppage and the production of an adequate circulation by massage. The maintenance of a free and adequate artificial respiratory exchange during the course of resuscitation of the heart is essential. Massage of the heart alone is of no avail if proper exchange of gases in the pulmonary alveoli cannot occur. Cases of cardiac stoppage susceptible of complete resuscitation are those resulting from asphyxia, reflex vagal inhibition, cardiac trauma, cardiac toxins (drugs, anesthetics) acute cardiac dilatation, hemorrhage and vasomotor paralysis with resulting circulatory insufficiency, and electrocution. The authors condemn the indiscriminate use of intracardiac injection of epinephrine or other sympathomimetic drugs. These drugs should not be administered during the course of cyclopropane anesthesia. Procaine hydrochloride 2 per cent, administered prior to or simultaneous with the intracardiac injection of epinephrine, lessens the possibility of ventricular fibrillation. Topical application of procaine 5 per cent, metycaine 10 per cent or cocaine 4 per cent may also be used to the surface of the heart; injection of 2 per cent solution into the chambers of the heart and electrical countershock are the most efficient methods in the treatment of ventricular fibrillation. The transthoracic approach is the method of choice in the performance of cardiac massage. Ex-

sure of the heart is obtained through a transverse incision in the left third or fourth interspace, the adjacent costal cartilages sectioned and the corresponding ribs widely retracted. Manual massage of the heart is the most effective means of initiating cardiac contractions. If uniform success is to be obtained, massage must be performed within three minutes after cessation of the heart beat.

Sulfonamides in Peritonitis of Appendical Origin.—Stafford and his collaborators made a survey at the Los Angeles County General Hospital of 903 consecutive cases of acute appendicitis with perforation or abscess formation. During the period from 1939 to 1942 inclusive the mortality rate for perforated appendicitis decreased from 9.2 to 3.4 per cent. Sulfonamides were used with increasing frequency, so that 98 per cent of all cases during 1942 received some form of chemotherapy. The mortality rate decreased each year as the use of sulfonamides increased. Morbidity as well as mortality was reduced, as observed by the yearly decrease in the frequency of post-operative peritoneal abscesses and pneumonitis. Drainage of the peritoneal cavity following appendectomy was used less often, as sulfonamides were used intraperitoneally in nearly all cases. In 1942 1 patient out of 3 had no drain used either in the peritoneal cavity or abdominal wound. In abscess formation following appendical perforation the procedure of choice was incision and drainage only in the completely walled off abscess. In 1942 appendectomy was performed in over three fourths of the abscess cases without fatality. Clinical observations in a large group of cases confirm the experimental evidence that sulfonamides are an effective form of therapy in the treatment of peritonitis. Their use is of particular value when implanted intraperitoneally during the early stages of peritonitis in perforative appendicitis.

Occlusion of Infected Patent Ductus Arteriosus with Cellophane.—As more patients with patent ductus arteriosus are being operated on, it is becoming obvious that the ordinary types of ligature material are inadequate to maintain occlusion of a patent ductus arteriosus. This is particularly true of the infected cases with large irregularly shaped vegetations within the lumen of the ductus arteriosus. Harper and Robinson report a case in which a patent ductus arteriosus was occluded by ligating it with two silk ligatures and then wrapping cellophane loosely about it. The patient was a woman aged 28 in whom a patent ductus arteriosus was complicated by long standing severe subacute bacterial endocarditis and endarteritis. The postoperative course demonstrated that the cellophane was responsible for the final complete occlusion of the patent ductus arteriosus. For the first two weeks the murmur and symptoms disappeared only to reappear and persist until two and one-half months had elapsed from the time of operation. The murmur and symptoms then completely disappeared and the patient has remained entirely well to date, one and one-half years after the ligation.

American Review of Tuberculosis, New York

49:395-484 (May) 1944

- *Sulfonamide Therapy in Actinomycosis: 2 Cases Caused by Aerobic Partially Acid Fast Actinomyces. E. P. Benbow Jr., D. T. Smith and K. S. Grimson.—p. 395.
- *Atypical Pneumonia Simulating Pulmonary Tuberculosis. J. S. Yoskalka.—p. 408.
- "Speed of Reaction" Hypothesis: Its Numerical Foundations in Respect to Tubercle Bacillus. H. W. Hill.—p. 414.
- Influence of Environmental Factors on Fever in Pulmonary Tuberculosis. J. S. Howe and A. Mayne.—p. 423.
- Basal Pulmonary Tuberculosis: Results of Treatment. B. L. Gordon, R. Charr and M. J. Sokoloff.—p. 432.
- Boeck's Sarcoid and Systemic Sarcoidosis: (Bestner-Boeck-Schaumann Disease) A Study of 35 Cases. D. Reisner.—p. 437.
- Growth of Human Tubercle Bacilli Under Restricted Air Conditions. M. L. Cohn.—p. 463.

Sulfonamide Therapy of Actinomycosis.—Benbow and his associates state that approximately 90 per cent of the clinical cases of actinomycosis are caused by *Actinomyces bovis*. Reports indicate that sulfonamides are effective in the treatment of this disease. In most instances the sulfonamides were given in conjunction with potassium iodide. Ten per cent of cases of clinical actinomycosis are caused by aerobic *Actinomyces* or *Nocardia*. Some of these *Nocardia* are acid fast or partially

acid fast. Twenty-six cases of pulmonary infection with the acid fast type have been collected from the literature. The mortality is high: 25 of the 26 patients were dead at the time the reports were published. The authors report 2 new cases of pulmonary and chest wall infections with acid fast *Nocardia*. The first patient developed weakness and loss of weight. The x-ray film showed an infection of the left lung. Three draining sinuses appeared in the neck, chest and hip. Acid fast actinomyces was found in the sputum and in drainage from the sinuses. After seven months' treatment with bed rest, vitamins, sulfonamides, x-ray therapy, surgical drainage and potassium iodide the patient made slow but steady improvement; she is now apparently well. The second patient developed an abscess in the subcutaneous tissues of the chest wall, followed by the appearance of multiple abscesses of the lung and a perirectal abscess. Acid fast actinomyces was found in the sputum and in the perirectal abscess. With surgical drainage of the chest wall abscess, surgical and x-ray therapy for the perirectal abscess, supplemented by sulfadiazine and potassium iodide, the patient improved steadily. In actinomycosis sulfonamides do not give results analogous to those observed in pneumococcal pneumonia or meningococcal meningitis. Although temporary improvement nearly always follows their use, the authors have seen several cases of the anaerobic type in which the disease again became progressive and resulted in death. Actinomycosis is a chronic disease with remissions, spreads and generalized dissemination analogous to tuberculosis. Patients should be observed for a period of years rather than months before being classified as cured.

Atypical Pneumonia Simulating Pulmonary Tuberculosis.—Atypical pneumonia can produce lesions which at times are indistinguishable from pulmonary tuberculosis. Yoskalka observed 7 patients with upper lobe involvement among 96 patients with atypical pneumonia. Two of these had been roentgenologically diagnosed as having pulmonary tuberculosis. Conversely, 1 case had been diagnosed as atypical pneumonia which later proved to be tuberculosis. Approximately 7 to 10 per cent of atypical pneumonias have upper lobe involvement, the usual site for pulmonary tuberculosis. Serial roentgenograms showing apical lesions failing to clear in twenty days following the onset of the disease should raise the suspicion of pulmonary tuberculosis. Sputum studies for tubercle bacilli are indicated in all doubtful cases. If lesions persist for twenty days from the onset of the illness and routine sputum studies are negative, further studies should be done, such as sputum and gastric concentrates and guinea pig inoculation. Because of the apparent increase in the incidence of atypical pneumonia, the need for an early differential diagnosis is imperative.

Annals of Internal Medicine, Lancaster, Pa.

20:733-880 (May) 1944

- American Medicine in War and Peace. E. E. Irons.—p. 738.
Salmonella Infections: Report of 37 Cases Observed at Beth Israel Hospital, New York in Past Four Years. E. Seligmann and J. J. Hertz.—p. 743.
*Histaminic Cephalalgia and Migraine. L. E. Lieder.—p. 752.
Psychosomatic Medicine: Some Notes on Its Application in Diagnosis and Treatment of Disease. M. Lipkin and L. I. Sharp.—p. 760.
Recent Advances in U. S. Public Health Service Methods. F. V. Meriwether.—p. 768.
Inversion of T Waves of Electrocardiogram in Two Patients with Neurocirculatory Asthenia. W. Merritt.—p. 773.
Primary Carcinoma of Jejunum and Ileum. P. G. Boman.—p. 779.
Postgastroectomy Gastritis. D. C. Browne and G. McHardy.—p. 789.
Treatment of Attacks of Sinus Tachycardia with Prostigmine. S. Waldman and S. N. Moskowitz.—p. 793.
Summary of 80 Living Cases of Pernicious Anemia. M. Hardgrove, R. Yuncck, H. Zetter and F. Murphy.—p. 806.

Histaminic Cephalalgia and Migraine.—Lieder studied 71 consecutive patients with headache. Careful classification showed that 4 of these patients had histamine cephalalgia, 52 had typical migraine and 15 had miscellaneous causes for their headache, such as hypertension and anxiety states. Histaminic cephalalgia is a vascular headache which is amenable to treatment with histamine. Its clinical characteristics are (1) absence of familial history of "sick" headache or allergic diseases, (2) onset most common in fourth or fifth decades, (3) short duration, (4) hemicrania usually, severe pain, constant, excruciating, burning, boring, (5) usually occurring during the night, (6)

eased by sitting up or standing erect, (7) associated with vasomotor phenomena consisting of lacrimation, congestion of the eye on the involved side, rhinorrhea or stuffiness of the nostril, increased surface temperature and often swelling of the temporal vessels of the involved side of the head, (8) attacks frequent, (9) compression of the common carotid and sometimes of the temporal artery frequently giving prompt relief, (10) occasional nausea, no vomiting, (11) no aura, (12) no relationship to the menstrual period, (13) alcoholic beverages frequently precipitating attacks, (14) histamine 0.1 to 1.2 mg. subcutaneously usually giving a typical attack of unilateral pain identical with the spontaneous attack, (15) epinephrine 1:400,000 solution, intravenously, giving prompt relief, (16) cure by hypsensitization to histamine. The efficacy of histamine hypsensitization therapy in histamine cephalalgia was confirmed in 2 patients. In 28 of the 52 patients with migraine, food allergy was found. Twenty-three of these patients exhibited other major allergic diseases such as hay fever, urticaria and asthma. A positive family history of allergy or migraine was obtained in 40 patients. Hypersensitivity assumes a major role in causing migraine. In the prophylaxis of migraine, identification and elimination of offending allergens, usually foods, is important. Physical and mental strain, which are predisposing factors, should be avoided. Ergotamine tartrate 0.25 to 0.50 mg. given subcutaneously is by far the best and simplest therapeutic agent.

Archives of Dermatology and Syphilology, Chicago

49:305-388 (May) 1944

- Effectiveness in Vitro of Sulfonamide Compounds on *Sporotrichum Schenckii*: Report of 5 Cases of Sporotrichosis in North Carolina. R. O. Noojin, and J. L. Callaway, with technical assistance of Judith Killian.—p. 305.
Dermal Myiasis: Report of Three Cases. J. W. Young.—p. 309.
*The Asbestos Corn. H. S. Alden and W. M. Howell.—p. 312.
Mycosis Fungoides with Bullous Lesions: Special Tests and Laboratory Data Indicating Adrenal Insufficiency. J. Garb.—p. 315.
Concentration of Arsenic in Blood After Administration of Mapharsen by Rapid Drip Method: Clinical and Experimental Studies. O. M. Gruhitz, J. A. Sultzberger and L. W. Shaffer.—p. 321.
Serum Protein in Dermatoses. W. Mulvehill.—p. 327.
Contact Dermatitis Due to Capeweed. E. A. Hand.—p. 331.
Epidermolysis Bullosa. S. I. Greenberg.—p. 333.
Asymmetric Cutaneous Lesions in Pellagra. W. Bennett Bean, T. D. Spies and R. W. Vilter.—p. 335.
Area Factor in Roentgen Irradiation. H. C. Goldberg.—p. 346.
Treatment of Erysiploid by Cryotherapy. C. M. Griswold and Shirley S. Bowen.—p. 348.
Papulonecrotic Tuberculid in the Negro: Its Clinical Resemblance to Acne Vulgaris and Early Syphilis. S. Irgang.—p. 351.

Asbestos Corns.—Derwitz in 1930 directed attention to warts and corns on the hands and feet of persons who worked with asbestos and described the discovery of an "asbestos needle" in the cornified layer of tubercles removed from the hands. Alden and Howell observed small painful "warts" or "corns" in 99 of 167 workers who used amosite, a natural form of asbestos, in their work in a navy yard. The workers who have these lesions complain of an original pricking sensation and ability to feel a small splinter-like foreign body. Rough attempts to extract this splinter-like body are usually unsuccessful, but with rubbing or with neglect the sensation tends to disappear. In about ten days a small hard cornlike tumor appears, which slowly grows, often attaining the size of a small split pea. Frequently a pinpoint black center, which defies extraction, can be observed in the excrescence. At this period the small cornified tumor is tender to pressure, as though a splinter were present, and interferes with comfortable work. Cornification becomes more pronounced, a small hard corn resulting, and the area does not become normal in appearance and feeling until the hard center plug is removed by instrumentation. These corns usually appear on the tips of the fingers and knuckles, most often occurring in the thick skinned areas of the hands. X-ray examination does not reveal abnormal shadows. Biopsy specimens from 4 patients revealed no pathologic changes except extreme thickening of the surface epithelium with hyperkeratosis. The dermis, while fibrous, was essentially normal in appearance and did not present any evidence of inflammation. Despite diligent search, foreign bodies could not be found in the sections. Observations and history of symptoms imply, however, that a foreign body is at some time present in the lesions. There is no relation to abetosis of the lungs. No satisfactory method of prevention can be offered.

Archives of Otolaryngology, Chicago

39:359-464 (May) 1944

- The Eustachian Tube: Review of Its Descriptive, Microscopic, Topographic and Clinical Anatomy. G. O. Graves and L. F. Edwards.—p. 359.
 Bacillus Proteus Infections: Review of Literature and Report of Case of Septicemia of Otitic Origin Treated with Sulfapyridine, with Recovery. T. L. McKee.—p. 398.
 Congenital Laryngeal Stridor (Inspiratory Laryngeal Collapse): New Theory as to Its Underlying Cause and Desirability of Change in Terminology. L. Schwartz.—p. 403.
 *Blast Injury of Ears. L. E. Silcox and H. P. Schenk.—p. 413.
 Pathology of Petrositis: Report of 3 Cases. A. A. Eggston.—p. 421.
 Chronic Progressive Deafness, Including Otosclerosis and Diseases of Inner Ear. G. E. Shambaugh Jr., Elizabeth A. Leggett and F. J. Wojniak.—p. 434.

Blast Injury of Ears.—Silcox and Schenk say that, of 1,922 casualties classified as having traumatic or surgical injuries and admitted to a hospital ship during the Solomon Islands campaign, 82, or 4.2 per cent, had blast injury of the ears serious enough to warrant observation and treatment by the otolaryngologist. Many patients had varying degrees of aural damage from concussion waves, but blast injuries of a more serious character to the thoracic or the abdominal viscera of these patients precluded extensive aural study. They were not included in this series. The commonest type of aural lesion was traumatic rupture of the tympanic membrane with or without secondary infection. Other forms of aural damage included traumatic deafness, which was almost universally present in varying degree, hemorrhage into the middle ear cavity, dislocation of the ossicles and labyrinthine hemorrhage. The precipitating causes for aural damage were (a) atmospheric blast arising from the detonation of aerial bombs, large caliber shells, mortar shells, hand grenades and land mines and (b) immersion blast from detonation of depth charges when the subject was in the water. Forty-one of the 82 patients gave a history of exposure to blast waves from bombs, and of this group 11 were unconscious following the concussion. Fifty-eight patients had perforation of the tympanic membrane. Suppurative otitis media was present at the time of admission in 35 of the 82 patients. As infection developed in such a high proportion of the patients without the technical error of syringing, it might be prudent to suggest the prophylactic measure of applying locally microcrystals of sulfathiazole as soon as possible after traumatic rupture has occurred. When secondary infection does not supervene, a traumatic perforation of the drum membrane heals promptly. Occasionally both the hearing and the tinnitus can be improved by inflation of the eustachian tube, particularly when the tympanic membrane is intact. Deep diathermy, concentrated vitamin B and rest are adjuvants. If there is superimposed suppurative otitis media, the insufflation of microcrystalline sulfathiazole powder or the instillation of a suspension of this drug into the external auditory canal will promptly control the infection.

Archives of Physical Therapy, Chicago

25:263-314 (May) 1944

- Influence of Short Wave Current on Intraspinal Temperature. W. Bierman and S. Feitelberg.—p. 263.
 Physical Therapy in Veterans Administration. C. M. Griffith.—p. 265.
 Observations on Rehabilitation of War Wounded in Navy Physical Medicine Department. J. L. Rudd.—p. 268.
 *New Approach to Problem of Incipient and Recurrent Malaria: Preliminary Report. G. E. Drewyer and J. E. Hughes.—p. 273.
 Program for Rehabilitation of Injured. C. O. Molander.—p. 276.
 Center of Gravity of Human Body, with Discussion of Equipment of German Infantryman. Susanne Hirt, E. Corinne Fries and F. A. Hellebrandt.—p. 280.
 Electrodiagnostic Interpretations in Nerve Lesions. P. Bauwens.—p. 288.

New Approach to Recurrent Malaria.—The tendency of malaria to recur after seemingly adequate therapy led Drewyer and Hughes to investigate what could be accomplished in preventing recurrence of symptoms. At the United States Naval Convalescent Hospital at Glenwood Springs, Colo., there is a natural hot vapor cave which is heated by a hot mineral water spring. The temperature of the spring is 140 F. The temperature in the cave varies between 102 and 110 F., with a relative humidity of 87 to 93 per cent. Patients are treated in the cave for a total of twenty minutes in divided periods, ten minutes at first with a three minute rest, then seven minutes

with a three minute rest and finally three minutes. The average oral temperature rise is 2 to 3.4 degrees. The patients are then brought upstairs and placed on a plinth; they are wrapped in a sheet and wool blanket and allowed to cool gradually for half an hour. Patients are treated daily. In latent malaria, when the plasmodium remains in the stagnant capillary beds of the spleen, liver and other organs, the artificial raising of the systemic temperature causes a general capillary dilatation with discharge into the peripheral circulation of red blood corpuscles with the dormant plasmodium, which within a period of twenty-four to ninety-six hours results in a typical malarial paroxysm. After a positive blood smear for the plasmodium is obtained, therapy is instituted in the form of quinine sulfate, 36 grains (2.4 Gm.) in three divided doses daily. Drug therapy is continued until the patient is afebrile for five days and the blood smear is negative for malaria. The patient is then returned to the department of physical medicine for five more fever sessions in the hot vapor caverns. During this time he continues to take quinine at the same dosage. The quinine is then stopped and the fever sessions are continued for six days. Whereas with ordinary treatment 8 of 26 patients had a recurrence, following the combination of artificial pyrexia and drug therapy there has been no recurrence of symptoms.

Arkansas Medical Society Journal, Fort Smith

40:213-232 (May) 1944

Medical Education in the Future. V. Johnson.—p. 213.

41:1-42 (June) 1944

President's Address. S. J. Albright.—p. 1.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

77:1-122 (June) 1944

- Fumigation of Army Buildings. W. D. Read.—p. 77.
 Coronary Occlusion in Race Horse. R. T. Gilyard.—p. 87.
 Injuries Incurred on Obstacle Courses. D. Sloane.—p. 89.
 Trench Foot. R. C. Berson and R. J. Angelucci.—p. 91.
 Division Dental Clinic in the Field. J. P. Williams.—p. 100.
 *Treatment of Undisplaced Fractures at Ankle Joint. M. Cleveland, L. J. Willien and P. C. Doran.—p. 103.
 Classification of Shigellas. N. W. Larkum.—p. 106.
 Herniation of Muscles of Lower Leg. L. N. Cozen.—p. 111.
 Lessons Learned from Pension Rating Boards. F. J. Vokoun.—p. 113.

Undisplaced Fractures at Ankle Joint.—Cleveland and his associates point out that rigid immobilization for fracture at the ankle joint, whether accompanied by displacement or not, was the rule. The most frequent bony injury about the ankle joint involved the distal one fourth of the fibula at the external malleolus or slightly above it in the fibular shaft. The convalescent—out of plaster—phase was frequently longer than the time of immobilization. This period was characterized by persistent dependent swelling, pain on weight bearing with crutches, and limitation of motion. Many of these patients had the partial use of their extremity throughout the immobilized period by attached or incorporated walking devices. For this type of injury a revision of treatment was instituted. Immobilization was discarded in favor of bed rest, elevation, ice packs and early active mobility. Weight bearing with crutches was permitted on subsidence of the soft tissue damage. All such treated cases needed no manipulation. The security of the ankle joint mortise was proved by x-ray studies. The impression was that the group of nonimmobilized patients recovered more rapidly than did the immobilized ones. The records of 32 external malleolar fractures without any or with minimal displacement which were treated with a circular plaster of paris dressing were contrasted with a similar number which received the bed rest and non-immobilization routine. The average period of hospitalization and duty days lost by the immobilized patients was 57.3 days. For the nonimmobilized patients the duration of hospital stay was 35.7 days.

California and Western Medicine, San Francisco

60:129-232 (April) 1944

- Future of Medicine from Standpoint of Physician in Practice. M. B. Gibbons.—p. 197.
 Tuberculosis in Wartime. C. R. Howson.—p. 199.
 Extreme Insulin Resistance in Diabetes. H. C. Shepardson, G. Gohle and Polly B. Withrow.—p. 201.
 Clinical Diagnosis of Cerebellar Injuries. W. T. Grant.—p. 204.
 California Physicians' Service. G. E. Outland.—p. 209.

Canadian Medical Association Journal, Montreal

50:403-504 (May) 1944

- Procedures Recommended for Organization and Operation of Blood Bank. L. J. Rhea, O. F. Denstedt, A. Bertrand, C. J. E. van Dorsser and P. H. Greecy.—p. 403.
- Effect of Different Agents on Rate of Epithelial Regeneration: Use of Dermatomate Donor Area in Obtaining Clinical Data. H. Baxter, J. A. F. Stevenson, V. Schenker and J. S. L. Browne.—p. 411.
- Study of Shock Produced by Intraperitoneal Implantation of Muscle. J. L. A. Fowler.—p. 416.
- Metrazol Shock Therapy Administered in General Hospital. J. A. Cummins.—p. 420.
- The Older Worker. Lydia G. Giberson.—p. 422.
- Role of Hypophysis in Pathogenesis of Diseases of Adaptation. H. Selye.—p. 426.
- Fetal Endocarditis (Report of Case). R. R. MacGregor and R. McKendry.—p. 433.
- Method of Fixation in Fractures Involving Maxillary Antrum. E. E. Scharfe.—p. 435.
- Rare Ovarian Tumor (Brenner Type or Adenocanthoma?). J. C. Simpson and A. Branch.—p. 437.
- Leiomyoma of Urethra (Female). M. Ratner and A. Strasberg.—p. 439.
- Toxic Effects of Sulfonamide Therapy on Urinary Tract. D. Swartz.—p. 440.
- Pentothal Sodium Anesthesia. I. Rachmel.—p. 443.

Experimental Medicine and Surgery, Brooklyn

2:93-192 (May) 1944. Partial Index

- Human Spinal Cord Transplant. D. Woolsey, J. Minckler, N. Rezende and R. Klemme.—p. 93.
- Hyperprothrombinemia, a Premonitory Sign of Thromboembolization: Description of Method. S. Shapiro.—p. 103.
- Electrocardiographic Studies in Newborn. F. M. Groedel and M. Miller.—p. 110.
- Further Observations on Effect of Subcutaneous Injection of Amino Acids and Creatine on Appearance, Growth and Regression of Emge Sarcoma in Rats. H. H. Beard and E. Givens.—p. 125.
- Some Recent Trends in Experimental Cancer Research. H. H. Beard.—p. 129.
- Ovarian Response to Normal Male and Female Rat Pituitaries. R. P. Reece and J. H. Leatham.—p. 147.
- Cardiotoxic Adrenosympathetic Activity in Vitamin B Deficiencies. W. Raab and G. C. Supplee.—p. 152.

Florida Medical Association Journal, Jacksonville

30:457-500 (May) 1944

- Riedel's Struma. H. R. Mills and H. H. Whitney.—p. 471.
- Hypodermic Medication Should Be Painless. F. J. Walter.—p. 474.
- Closer Cooperation Between Medical and Dental Professions. R. D. Cummins.—p. 475.

30:501-568 (June) 1944

- President's Address. E. G. Peek.—p. 521.

Gastroenterology, Baltimore

2:233-306 (April) 1944

- Surface Epithelium of Normal and Inflamed Stomach. R. Schindler.—p. 233.
- Hypertrophic Pyloric Stenosis in Adults. H. Wakefield.—p. 250.
- Frequency of Bacillary Dysentery at Cook County Hospital, Chicago, Ill. F. F. Chesley and C. I. Woolsey.—p. 258.
- Gastrointestinal Hypochondriac and Some Lessons He Taught. W. C. Alvarez.—p. 265.
- Effect in Vitro of Various Detergents on Peptic Activity of Human Gastric Content. J. B. Kirsner and R. A. Wolff.—p. 270.
- *Experimental Production of Acute and Subacute Gastric Ulcers in Cats by Intramuscular Injection of Caffeine in Beeswax. J. A. Roth and A. C. Ivy.—p. 274.

Gastric Ulcers Produced by Injection of Caffeine.—Roth and Ivy employed the technic of embedding caffeine in a beeswax-liquid petrolatum mixture in order to obtain prolonged and continuous caffeine action. The mixture was prepared in batches of 22.5 Gm. of anhydrous caffeine alkaloid, 15 cc. of melted bleached beeswax and 60 cc. of hot liquid petrolatum. The mixture was injected alternately into the shoulder, thigh, calf and back muscles of 22 cats, which weighed from $3\frac{1}{2}$ to $7\frac{1}{2}$ pounds (1,588 to 3,518 Gm.) and were given 300 mg. of caffeine base daily. Eleven of the 22 cats developed bleeding erosions or ulcers. All of the mucosal defects appeared in the lesser curvature of the stomach, in the antral and prepyloric regions. The stomachs contained black-brown stained material and showed numerous punctate bleeding points surrounding the ulcers. Grossly the mucosal defects resembled those occurring spontaneously in man. The acute and subacute bleeding erosions and ulcers observed in the gross specimens were confirmed and studied in detail in microscopic sections. The microscopic picture suggests that the vasodilatation and engorgement might

in turn give rise to stasis, increased capillary permeability, transudation and impaired cell nutrition, all of which would contribute to the development of ulceration. The experiments imply that the excessive use of beverages containing caffeine might assume a contributory role in the pathogenesis of gastroduodenal ulcers in man. In view of these findings and the pronounced stimulation of gastric secretion in man by the oral or parenteral administration of caffeine, it is suggested that the use of caffeine beverages be restricted in the management of the peptic ulcer patient.

Georgia Medical Association Journal, Atlanta

33:129-168 (May) 1944

- Medical Problems of Today. W. A. Selman.—p. 129.
- Management of Hyperthyroidism. P. E. Roberson.—p. 133.
- Fracture of Femoral Neck and Trochanter. L. Thornton.—p. 136.
- Treatment of Deep Burns and Contractures. J. H. Kite.—p. 139.
- The Man in Medicine. M. S. Pittman.—p. 144.
- Stephens Hales and Founding of Georgia. J. Krafka Jr.—p. 149.
- Ethyl Chloride Spray for Freezing Donor Area in Skin Grafting. J. H. Gastou.—p. 151.

Illinois Medical Journal, Chicago

85:213-268 (May) 1944

- Value of Surgery and X-Ray Treatments in Carcinoma of Breast. R. T. Pettit.—p. 244.
- Medical Education and War. J. R. Miller.—p. 247.
- Medical Education in the Present War. E. J. Carey.—p. 252.
- Inversion of Uterus. C. W. Barrett.—p. 253.

Journal of Clin. Endocrinology, Springfield, Ill.

4:147-178 (April) 1944

- Hexestrol: Clinical Study over Period of Twenty-Seven Months. J. S. Ernsner, B. Mann and B. Zamostien.—p. 147.
- Excretion of Neutral 17-Ketosteroids in Adrenal Cortical Tumor and Feminine Pseudohermaphroditism with Adrenal Cortical Hyperplasia. W. W. Engstrom, H. L. Mason and E. J. Kepler.—p. 152.
- Sublingual Absorption of Progesterone and Anhydrohydroxyprogesterone: I. Endometrial Studies. R. B. Greenblatt.—p. 156.
- Uterothermometry: Study of Uterine Temperature During Reproductive Life, Menopause and Amenorrhea. E. M. Klafien.—p. 159.
- Evaluation of Sex Hormones in Treatment of Benign Prostatic Hypertrophy, Carcinoma of Prostate and Other Diseases of Genitourinary System. N. J. Heckel.—p. 166.
- Problems Involved in Diagnosis and Management of Male Infertility. N. J. Heckel.—p. 173.

Journal Industrial Hygiene & Toxicology, Baltimore

26:133-208 (May) 1944

- Physiologic Principles Governing Action of Acetone Together with Determination of Toxicity. H. W. Hagar, L. A. Greenberg and J. McC. Turner.—p. 133.
- Nitrogen Requirement of Patients with Thermal Burns. F. H. L. Taylor.—p. 152.
- Some General Principles Underlying Primary Local Treatment of Burns: Review. S. M. Levenson.—p. 156.
- Possible Toxicity of Lead Alloys: IV. Studies of Possible Toxicity of Two-Tin-Low and One-Tin-Free Substitute Solders. K. Salomon and G. R. Cowgill.—p. 162.
- Flicker Fusion Frequency as Test of Fatigue. J. Brozek and A. Keys.—p. 169.
- Chemistry of Wetting Agents. G. E. Morris.—p. 175.

Journal of Nutrition, Philadelphia

27:355-434 (May) 1944

- Unidentified Factor(s) in Yeast and Liver Essential to Cure of Achromotrichia in Dogs on Synthetic Diets. D. V. Frost and F. Peirce Dann.—p. 355.
- *Retention of B Vitamins in Rare and Well Done Beef. Sylvia Cover, Barbara A. McLaren and P. B. Pearson.—p. 363.
- Comparison of Response of Turkey Poults and of Chicks to Different Forms of Vitamin D. H. R. Bird.—p. 377.
- Simplified Diets for Guinea Pig. K. A. Kuiken, R. H. McCoy, M. O. Schultze and C. G. King.—p. 385.
- Studies on Absorption of Carotene. R. J. Shaw and H. J. Deuel Jr.—p. 395.
- Efficacy of Vitamin D from Different Sources for Turkeys. R. V. Boucher.—p. 403.
- Pyridoxine Content of Fresh, Pasteurized, Evaporated and Dried Milk. A. Z. Hodson.—p. 415.
- Retention of Vitamins in Pork Hams During Curing. B. S. Schweigert, J. M. McIntire and C. A. Elvehjem.—p. 419.
- Studies of Pantothenic Acid Deficiency in Dogs. R. H. Silber.—p. 425.
- B Vitamins in Beef.**—Cover and her associates point out that the vitamin content of meat usually has been reported on the raw basis. Heat losses during cooking may be expected. Rare roast beef is cooked to a lower internal temperature than

well done beef and has lower weight losses in the oven. Since these factors may affect the retention of the B vitamins, it seemed desirable to determine the losses of thiamine, riboflavin, nicotinic acid and pantothenic acid in rare and well done beef, roasted by a method which not only is suitable for use in the home but could be controlled carefully enough for research purposes. Right and left two-rib roasts of beef were cut alike and used as pairs, one being analyzed raw and the other after cooking by a standardized method. The entire meat in each roast was ground and samples were used for the determination of thiamine, riboflavin, nicotinic acid and pantothenic acid. The average vitamin content of eighteen raw roasts from the commercial carcasses was, in microgram/Gm, thiamine 1.3, riboflavin 1.5 and 1.6 by the fluorometric and microbiologic methods respectively, nicotinic acid 49 and pantothenic acid 4.9. Differences in vitamin content between the raw rib roasts within a carcass were not significant for any of the four vitamins, but differences between animals were highly significant. Retentions in rib roasts of beef, rare and well done respectively, were thiamine 75 and 69 per cent, riboflavin 83 and 77 per cent, nicotinic acid 75 and 79 per cent, pantothenic acid 91 and 75 per cent. Retentions of thiamine and pantothenic acid were significantly lower in the well done than in the rare roast, but with riboflavin and nicotinic acid the differences between rare and well done roasts were not significant. One serving of rib roast of beef was calculated to furnish approximately 7 per cent of the thiamine, 6 per cent of the riboflavin and 37 per cent of the nicotinic acid recommended for a moderately active woman for one day.

Journal Pharmacology & Exper. Therap., Baltimore 80:309-416 (April) 1944

Pharmacologic Action of Venom of *Latrodectus Mactans* and Other *Latrodectus* Spiders. R. R. L. Sampayo.—p. 309.

Effect of Temperature on Inactivation of Epinephrine in Vivo and in Vitro. F. A. Fuhrman, J. M. Crismon, Geraldine J. Fuhrman and J. Field II.—p. 323.

Spasmodic and Local Anesthetic Action of Some Esters of 9, 10 Dihydroanthracene Carboxylic Acid and Related Compounds. G. Lehmann and P. K. Knoerel.—p. 335.

Studies on Relation of Drug Addiction to Autonomic Nervous System: Results of Tests of Peripheral Blood Flow. C. K. Hummelsbach.—p. 343.

*Action of Atabrine on Electro Cortico Potentials. E. P. Pick and J. Hunter.—p. 354.

Influence of Thiamine Deficiency on Work Performance in Rats. M. Kuzak and H. Molitor, with technical assistance of J. Hunter, H. Kasha and W. O'Shanny.—p. 362.

Biologic Assay of Posterior Pituitary. R. E. Thompson.—p. 373.

Studies on Antimalarial Drugs: Excretion of Atabrine in Urine of Human Subject. F. E. Kelsey, F. K. Oldham, E. H. Dearborn, M. Silverman and E. W. Lewis.—p. 383.

Studies Concerning Absorption and Detoxification of Anesthetic Steroids. H. Selye and Helen Stone.—p. 386.

Studies on Antimalarial Drugs: Preparation and Properties of Metabolic Derivative of Quinine. F. E. Kelsey, E. M. K. Geiling, Frances K. Oldham and E. H. Dearborn.—p. 391.

Studies on Detoxication of Organic Arsenical Compounds: V. Additional Detoxicants for Pentavalent Arsenicals. J. H. Sandground.—p. 393.

Inhibition of Histamine Effects by Compounds of Histamine, Histidine and Arginine. M. R. E. Silva.—p. 399.

Action of Atabrine on Electro Cortico Potentials.—Pick and Hunter studied the reaction of the brain cortex to varying doses of atabrine. They made their investigations on cats and frogs. They found that atabrine in doses of 5, 10 and 12 mg. per kilogram given intraperitoneally or intravenously can alter the electrocorticogram of cats in pentobarbital sodium anesthesia. The rapid wave frequency usually disappeared, and only slow waves of low amplitude remained. This central depressant action of atabrine seems to be independent of the atabrine blood concentration and appears to be related to the atabrine content of the brain. This effect persisted, depending on the dose given, for one to four hours. A similar atabrine action was seen in the electrocorticogram of pithed frogs following the injection of atabrine. The authors conclude that their results tend to support clinical observations of central disturbances occurring during or following the administration of atabrine.

Nebraska State Medical Journal, Lincoln

29:133-164 (May) 1944

Treatment of Concomitant Strabismus. S. R. Gifford.—p. 136.

Effect of Stilbestrol on Puerperal Breast Engorgement: Preliminary Report. W. E. Brown and L. G. Grant.—p. 140.

Traumatic Rupture of Kidney. P. Adams.—p. 142.

Deep Lipoma: Case Report. W. G. Kraybill.—p. 146.

Imported Nematodes. L. O. Vose.—p. 148.

New England Journal of Medicine, Boston

230:567-594 (May 11) 1944

*Meningoencephalitis in Lymphogranuloma Venereum: Report of 2 Cases. C. J. D. Zarafonetis.—p. 567.

Carcinoma of Thyroid Gland with Solitary Metastasis to Skull: Report of Case. H. L. Albright.—p. 573.

Gynecology: Carcinoma of Cervix. J. V. Meigs.—p. 577.

Meningoencephalitis in Lymphogranuloma Venereum.

—Zarafonetis presents evidence that lymphogranuloma venereum may be a cause of acute meningoencephalitis. He reports 2 cases. A virus was isolated from an inguinal lymph node of 1 patient five months after the onset of illness, in spite of the fact that the histopathologic changes in the lymph node were nonspecific. The virus was identified as lymphogranuloma venereum. Mice were immunized to this virus and to another strain of lymphogranuloma venereum by intraperitoneal injection. Subarachnoid block, an extremely high total protein and first zone colloidal gold curves were observed. Positive Frei tests were obtained on 1 patient with an antigen made from the virus isolated from him as well as with other yolk sac antigens. An intradermal test on the same patient with psittacosis antigen was negative. The etiologic relationship of the virus to the meningoencephalitic changes was based on the involvement of the central nervous system, the knowledge that this virus can produce meningoencephalitic signs in experimental animals, the fact that the virus has been isolated from the spinal fluid of other patients with the disease and the negative serologic results in tests against other encephalitis-producing virus agents. Final proof that lymphogranuloma venereum can cause meningoencephalitis in man must await isolation of the virus from the brain substance in a fatal case and the demonstration of microscopic changes in the brain tissue consistent with those produced by the virus in experimental animals. On the basis of the spinal fluid dynamics, the first patient presented a complete spinal block throughout the eight months he was observed. It is believed that the meningeal involvement early in the course of his illness resulted in subarachnoid block. This syndrome is known to occur in patients with acute purulent meningitis, tuberculous meningitis, yeast meningitis and syphilitic meningitis. Since these causes were excluded by cultural and serologic studies, it appears probable that the adhesive arachnoiditis was a residuum of the lymphogranuloma venereum infection.

New Jersey Medical Society Journal, Trenton

41:179-220 (May) 1944

Importance of Proctologic Examinations, with Brief Remarks on Pathogenesis of Anorectal Disease. J. Gerendasy.—p. 183.

Primary Atypical Pneumonia, Etiology Unknown: Clinical Study of 96 Cases. J. S. Yoskalka.—p. 188.

Public's Stake in Non Government Health Insurance. E. A. van Steenwyk.—p. 194.

It's a Matter of Team Work. J. L. Neff.—p. 200.

New Orleans Medical and Surgical Journal

96:489-550 (May) 1944

New Orleans Medical and Surgical Journal, One Hundred Years of Medical Journalism in Louisiana, May 1844-May 1944. Dr. Matas.—p. 489.

Early History of New Orleans Medical and Surgical Journal. A. E. Fossier.—p. 496.

Medical Literature in Louisiana Prior to Advent of New Orleans Medical and Surgical Journal. W. D. Postell.—p. 508.

Biographic Annotations Appended to Pictorial Gallery of Editors and Builders of New Orleans Medical and Surgical Journal Since Its Birth in May 1844 to Close of First Centenary of Its Service to Medical Profession, Under Auspices and Ownership of Louisiana State Medical Society on May 4, 1944. R. Matas.—p. 519.

New Orleans Medical and Surgical Journal: Bibliographic Notes. Mary Louis Marshall.—p. 523.

Comments by Daniel Drake on Medicine in New Orleans in 1844. J. H. Musser.—p. 528.

Louisiana: Its Record of Medical Progress, 1718-1860. W. D. Postell.—p. 530.

Psychosomatic Medicine, Baltimore**6:119-188 (April) 1944**

- Some Special Aspects of Psychotherapy in Army Air Forces. J. M. Murray.—p. 119.
- Brief Psychotherapy in War Neuroses. R. R. Grinker and J. P. Spiegel.—p. 123.
- Combined Amphetamine Sulfate (Benzedrine Sulfate) and Belladonna Alkaloid Therapy of Regression Neuroses: Report of This Medication with Clinical and Normal Subjects. J. S. L. Jacobs.—p. 132.
- Effect of Mental Activity on Incidence of Seizures and Electroencephalographic Pattern in Some Epileptics, with Remarks on Influence of Amphetamine Sulfate. H. Strauss.—p. 141.
- Abstract and Categorical Behavior Following Therapeutic Brain Surgery. G. W. Kisker.—p. 146.

United States Naval Med. Bulletin, Washington, D. C.**42:1009-1232 (May) 1944. Partial Index**

- Combat Injuries in South Pacific. L. S. Auster.—p. 1009.
- Early Care of Facial Wounds. S. A. Myers.—p. 1019.
- Perforating Wounds of Chest. M. C. Overton Jr. and R. J. Criss Jr.—p. 1021.
- Postoperative Urinary Retention: Clinical Study of 1,964 Naval Recruits Subjected to General Surgical Procedures. C. W. McLaughlin Jr. and J. R. Brown.—p. 1025.
- Renouretal Colic with Hematuria at Advance Base Hospital. F. A. Ellis.—p. 1033.
- Organic Upper Gastrointestinal Disease at an Advance Base. J. H. L. Heintzelman and H. W. Jacox.—p. 1035.
- Observations on Bacteriology and Epidemiology of Acute Respiratory Tract Infections in Tropics. R. F. Norris, R. A. Kern and A. J. Musgrave.—p. 1039.
- Present Status of Penicillin. G. F. Schmitt.—p. 1047.
- *Filariasis Among Navy and Marine Personnel: Report on Laboratory Investigations. P. Michael.—p. 1059.
- Observations on Dengue. D. A. Carson.—p. 1081.
- Acute Infectious Jaundice. J. H. Willard.—p. 1085.
- Psychiatric Casualties. E. H. Steele.—p. 1089.
- Syncope Reactions of Anoxic Subjects Observed in Low Pressure Chamber: Relationship to Incidence of Epilepsy; Preliminary Report. N. E. Baxter, C. S. White, D. T. Watts and W. D. Abbott.—p. 1103.
- Protruded Intervertebral Disk: Advantage of Upright Position in Surgical Removal. C. H. Shelden.—p. 1107.
- Dermatitis Venenata Caused by Semecarpus Atr. J. M. Hitch.—p. 1111.
- Observation of Skin Diseases in Tropics. J. R. Delaney.—p. 1117.
- Value of Sulfonated Oils in Treatment of Burns and Other Denuded Surfaces. W. L. Rogers, T. M. Cohen and R. R. Goldberg.—p. 1125.
- *I. Dried Plasma Sheets in Treatment of Burns; II. In Treatment of War Wounds: Preliminary Reports. B. Pollock.—p. 1171.
- *Food Poisoning at Naval Training Station. B. B. Breese, J. B. Stanbury and H. C. Upham.—p. 1205.

Filariasis.—Michael directs attention to the growing incidence of filariasis among marine and navy personnel returning from the South Pacific. The present study deals with lesions caused by *Wuchereria bancrofti*. *Wuchereria malayi* has apparently not been identified in any of the patients. Filariasis is a nematode infection present in tropical and semitropical areas of the world. The Samoan variety differs in lacking the nocturnal periodicity of the microfilariae. Several thousand thick and thin smears taken at various intervals during both day and night hours have proved to be negative for microfilariae. Correlating these findings with the studies made on lymphatic tissue of the patients lends support to the belief that microfilariae will probably not be demonstrated in appreciable numbers, if at all. Unquestionably at some time in the cycle of the parasite microfilariae were present in the circulating blood. It is obvious that this problem is far different from that observed in endemic areas where large masses of the native population are infected and microfilariae may be demonstrated in the blood at will. It is hazardous to guess what might have happened in 4 of the author's patients from whom lymph nodes were removed and adult female pregnant *W. bancrofti* worms recovered. The possibilities are decidedly lessened when the optimal factors of tropical humidity and temperature are removed by change to temperate climates. Man is the definitive host, and approximately 44 different mosquitoes may serve as host for development of the mature larvae (intermediate host). The most common intermediate hosts are *Culex quinquefasciatus* and *Aedes scutellaris*. Other less common transmitters are *Culex pipiens*, *Aedes rossi*, *Aedes variegatus* and *Anopheles costalis*. Although the symptom free period may vary greatly from one or two months to twelve months, the majority of the author's patients developed their first symptoms from seven to nine months following their initial exposure. Constitutional symp-

toms consist of chills, mild fever, general malaise, nausea and occasional photophobia. Patients frequently note painful swollen red areas in the extremities which later involve the adjacent lymph nodes, followed by a retrograde or centrifugal lymphangitis. A vast majority of the patients show a funiculitis with or without epididymitis, orchitis or hydrocele. The author gives a detailed description of the histopathologic changes and thinks that the importance of serial sections of lymph nodes cannot be overemphasized. From microscopic studies and the fact that he was unable to demonstrate microfilariae in the peripheral blood stream, he concludes that this disease will not become a public health problem in this country. Filariasis should be ruled out in certain atypical lymph node diseases. Lymph node and lymphatic channel biopsies of the upper extremities cause no harm and afford the best means of diagnosis. Many of the lesions of filariasis are believed to be allergic in nature as the result of filarial foci elsewhere in the body. Certain lymph node, testicular and spermatic cord enlargements, together with the so-called fugitive swellings of the skin, may be explained on this basis. No specific effective therapeutic agent has as yet been demonstrated.

Dried Plasma Sheets for Burns and War Wounds.

Pollock introduces a new method of treating burns which apparently overcomes many of the objections found with tannic acid, triple dye and other coagulants. The ideal coagulum should be durable, noncontractile, indefinitely pliable, nontoxic, nonirritant, resistant to trauma, bactericidal, painless and not unsightly and should contain fibrin. Dried plasma sheets apparently come closer to fulfilling these criteria than any other coagulum introduced. The plasma sheets were made in a Petri dish, giving a sheet 4 inches in diameter. To 20 cc. of sterile water in a Petri dish, 1.5 to 2 Gm. of dried plasma is added and dissolved, and 0.2 Gm. of sulfanilamide powder added. This preparation is dried in an oven at 140 C. until a firm sheet forms. This drying process requires fifteen to twenty minutes. It is then allowed to cool and is applied directly to the burn. It was felt that second degree burns should have layers of tissue paper thickness, and deeper wounds should have thicker layers. The plasma sheets tend to curl at the edges. This curling can be overcome by moistening the sheet with water before applying. Within a few moments the plasma sheet becomes adherent, and within a few hours strands of fibrin can be seen securing the plasma sheet to the burn. Plasma loss is stopped immediately. Dressings may be used but are not essential. Plasma sheets were used also in the treatment of indolent, ulcerating slow healing war wounds.

Food Poisoning.—Breese and his associates describe seven outbreaks of acute food poisoning in a large naval training station. In five the causative food was determined and in three bacteriologic confirmation was secured. The foods that cause illness are those which make good mediums for the growth of organisms and are generally of animal origin (meat, fish or dairy products). In addition they have usually undergone considerable handling in the preparation after the initial cooking and have been rewarmed just prior to serving or have been served cold. Foods in these categories are ham, creamed chicken or fish, meat, fish or chicken salads, croquettes, hashes and goulashes, cream filled pies and pastries. The usual deviation from the proper technic of food handling is in permitting the sliced or boned meat or the prepared food to stand for several hours at room temperature or in inadequately refrigerated ice boxes before it is served. Rewarming is insufficient, but thorough recocking just prior to serving will, despite improper handling, destroy the organisms and their toxins. The staphylococcus enterotoxin is said to withstand boiling for thirty minutes. The author outlines measures designed to prevent food borne disease.

Wisconsin Medical Journal, Madison**43:489-580 (May) 1944**

- Eye in General Diagnosis. S. R. Gifford.—p. 509.
- Sulfonamides in Surgery. A. S. Jackson.—p. 516.
- Immediate and Remote Complications of Sulfonamide Therapy. J. C. Grill.—p. 522.
- Management of Premature Labor. C. J. Lund.—p. 526.
- Changes in Institutional Psychiatric Practice in Past Decade: (Observations from Private Sanitarium). C. W. Osgood.—p. 532.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:513-546 (April 15) 1944

Review of Work of Penicillin Therapeutic Research Unit. R. V. Christie and L. P. Garrod.—p. 513.

Experiences in Systemic Administration of Penicillin. H. V. Morgan, R. V. Christie and I. A. Roxburgh.—p. 515.

*Surgery and Penicillin in Mandibular Infection. R. Mowlem.—p. 517.

*Penicillin in Bone Infections. I. M. Robertson.—p. 519.

Local Application of Penicillin in Soft Tissue Lesions. J. N. Barron and O. T. Mansfield.—p. 521.

Local Treatment of Breast Abscess with Penicillin. D. B. Fraser.—p. 523.

Penicillin in Treatment of Certain Diseases of Skin. I. A. Roxburgh, R. V. Christie and A. C. Roxburgh.—p. 524.

Laboratory Control of Penicillin Treatment. L. P. Garrod.—p. 528.

Surgery and Penicillin in Mandibular Infection.—The first group of 4 cases reviewed by Mowlem involved postoperative cases in all of which infection was either anticipated or was causing early reaction. In these cases 1,000 units of penicillin was injected daily for several days and there was early bacterial control with consequent normal healing. The second group comprised 16 cases of osteomyelitis of the mandible. In all of them infection has been gross and well established, and penicillin has been used in conjunction with radical surgery. The operation consisted in subperiosteal excision of the lower border of the bone, together with the outer plate and all the infected medullary area. Until the advent of penicillin, the overlying soft tissues of the cheek were then packed away from the bone and the cavity allowed to granulate from its depth. The sulfonamides did much to control infection, but packing still seemed necessary. When penicillin became available, it was decided to continue this radical surgery with closure of the soft tissues. This has three advantages: (a) The soft tissues of the cheek may be closely approximated to the underlying bone and can be expected to contribute to vascular ingrowth. (b) The closed cavity not only excludes secondary infection but also retains the penicillin, which is thus permitted to exercise almost continuous action. (c) Primary instead of delayed healing is obtained. There was considerable similarity between all the cases. A soldier presented a 2 months old sinus in the iliac crest, with induration of the surrounding tissues. Hemolytic streptococcus and Staphylococcus aureus was found, and 1,000 units of penicillin was injected daily for ten days with improvement in the surrounding soft tissue but no change in the sinus or its bacteriologic contents. At operation a small sequestrum was found in a cavity lined with fibrous tissue. From this case the author deduces that, even if sterility is obtained with penicillin, healing will not automatically follow. The fibrosis and its resultant avascularity are the determining factors, and not the infection, and this will be true of many established bone infections. Penicillin is therefore no substitute for adequate surgery.

Penicillin in Bone Infections.—Robertson explored the value of penicillin in 34 cases of bone infections. In a group of 7 cases of hematogenous osteomyelitis, all in children, with one exception penicillin was used as an adjunct to surgery. The wounds following surgical exploration were packed lightly with petrolatum gauze and enclosed in a plaster, a window being cut to allow inspection and taking swabs for culture. Systemic penicillin treatment was given by various routes, dosage being calculated roughly according to body weight and based on an adult dose of 120,000 units daily. Local application of penicillin was employed in 8 cases of chronic hematogenous osteomyelitis and 7 cases of osteomyelitis following compound fractures. The results of the local application of penicillin have been disappointing. Complete healing occurred in only 1 of these cases. In the others there was only temporary or no improvement. The author lists the following three factors as probably responsible for the unsatisfactory results: (1) failure of continuous application, (2) inaccessibility of the bone infection, (3) the presence of dead bone. In the group of compound fractures, those cases presenting a guttered wound with gross skin loss and bare bone exposed in the depths were particularly resistant to treatment, the mixed bacterial flora remaining

unaltered and the healing of the wound being delayed. It is hoped to improve on these discouraging results by the more radical removal of infected bone, followed by complete closure, if necessary with the aid of a full thickness graft, and subsequent instillation of penicillin solution through a tube. Of 12 patients with miscellaneous orthopedic defects 10 were treated with the local administration of penicillin and 2 with the systemic application. The majority of the locally treated cases in this miscellaneous group responded well, possibly because the lesions were of small extent, involving mainly soft tissues, and usually not of long standing. The 2 cases treated systemically were costly failures. To judge by the results in these 2 cases, long standing sepsis involving bone must be considered an unfavorable field for penicillin treatment, either local or systemic.

Medical Journal of Australia, Sydney

1:237-260 (March 18) 1944

Health and the Gold Standard. J. Dale.—p. 237.

*Management of Established Wound Infections. H. R. G. Poate.—p. 242.
Kationic Chemotherapy, with Special Reference to Acridines. A. Albert. p. 245.

Management of Wound Infections.—Poate believes that little attention is given to the control of frank suppuration. One reason for this is the abuse of the "closed plaster" technic. Once patients have reached a base hospital where they can be retained, plaster casts should be abandoned in the majority of cases. The nauseating stench of foul wounds which characterized the primitive hospitals of pre-Lister days, and a reversion to "laudable pus," have no place in the modern treatment of infected wounds. The all pervading and sickening odor of stinking plaster permeated with blood and pus has a depressing and even demoralizing effect. The continued loss of plasma protein in running pus has a debilitating effect on the patient, and the chronic toxemia with its associated pyrexia has a harmful effect on the constitution of his blood and on his tissues generally. Plaster is invaluable in providing comfort during transport and has proved to be a life saver in many cases, but it should not be abused. Poate is chiefly concerned with deep wounds and especially with those associated with bone and joint injury. He stresses the following points in the management of established wound infection: the great importance of maintaining the hemoglobin content of the blood as near to normal as possible; the necessity for removal of all dead tissue and especially sequestrums from the depths of these wounds; the abolition of closed plaster technic in these cases once a stabilized form of treatment is available; the inefficiency of sulfonamides as local applications in the presence of frank pus; the great importance of the acridine antiseptics in the control of established and chronic sepsis; the necessity for maintaining the skin surrounding wounds in a surgically clean condition so as to prevent reinfection; the control of cross infection in hospital wards.

Bollettino d. Soc. Ital. d. Med. e Ig. Trop., Asmara

2:5-114 (No. 6) 1943. Partial Index

*Rheumatic Fever in Eritrea. G. Ferro-Luzzi.—p. 13.

Modes of Onset and Course of Pulmonary Tuberculosis in Ethiopians. —p. 48.

Rheumatic Fever in Eritrea.—Ferro-Luzzi studied 50 white Europeans who were living in Eritrea and presented symptoms of rheumatic fever. There were no cardiac complications in a group of patients in whom the first attack of the disease occurred when the patients were living in Eritrea or presented a recurrence of a first attack in Eritrea. Cardiac complications were observed in a group of patients in whom the attack of the disease represented a recurrence of previous attacks suffered in Europe. One of the patients in the first group died from an acute hyperfebrile form of the disease. The heart was found to be normal at a necropsy. Salicylates, iodine, arsphenamines, sulfanilamide, sodium glycerophosphate and short wave therapy failed in patients in the former group, whereas they were effective in those of the second group. The natives do not have the disease. Laboratory studies and cultures failed to reveal the etiologic agent in the patients of the first group. The author believes that the disease is a form of rheumatic fever.

Book Notices

New and Nonofficial Remedies, 1944, Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1944. Issued Under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Cloth. Price, \$1.50. Pp. 778. Chicago: American Medical Association, 1944.

Noteworthy features of *New and Nonofficial Remedies, 1944*, are the revision to put into effect the Council's decision to use the metric system exclusively and the addition of the chapter on contraceptives. In the opinion of many the decision to use only the metric system will appear to be the belated taking of a step which has been long overdue. Nevertheless it represents a courageous move on the part of the Council. It is to be hoped that the Council's action will hasten universal adoption of this system in this country. Concession is made to those who may be still attached to the apothecary system in the form of the excellent equivalent dosage tables which appear in the front part of the book.

The chapter on contraceptives is quite comprehensive; with the acceptance of more preparations it will undoubtedly assume a large place in *New and Nonofficial Remedies*. The Council has thus far accepted some contraceptive jellies and creams, contraceptive diaphragms, diaphragm inserts, syringe applicators and fitting rings. It is understood that a number of additional preparations have been submitted for Council consideration since the book went to press. This chapter again represents a courageous and long needed innovation.

Some of the new preparations that appear in this volume are Succinylsulfathiazole, a new sulfonamide, a proprietary brand being "Sulfasuxidine"; Diodrast Concentrated Solution, a preparation of the already accepted Diodrast for use in a special diagnostic procedure for visualization of the circulatory system and also cholangiography; a preparation of Sodium Benzoate for use as a liver function test; Mersalyl and Theophylline, accepted under the name Salyrigan-Theophylline Tablets, proposed as an adjunct to intravenous injection of the already accepted drug; Zinc Insulin Crystals and Zinc Insulin Injection Crystalline; Tetanus Toxoid, and Concentrated Oleovitamin A and D, a dosage of the Pharmacopeial preparation.

A glance at the preface shows that certain general articles have been revised to bring them up to date. More or less important revisions have been made of the chapters on barbituric acid derivatives, estrogenic substances, parathyroid, ovaries, sulfonamide compounds and vitamins, especially the sections on vitamin B complex and vitamin D. In this connection it is worth noting that each chapter in the book is reviewed annually, or more often if indicated, by the responsible referee for such revision.

One notes the curtailment of the section on "articles and brands accepted by the Council but not described in *New and Nonofficial Remedies*." It is understood that this is caused by the recent decision of the Council greatly to limit its list of official preparations and to describe in the body of the book such of the listed articles and brands as it seems necessary to retain. This again appears to be a somewhat radical and forward looking decision of the Council. Such innovations and leadership are to be commended, and the new and younger members of the Council will undoubtedly pursue these and other objectives with the same sane and competent leadership that has distinguished this body and its service to the medical profession and to society in general.

Clinica psiquiátrica. Por el Dr. Ernesto Daniel Andía, jefe del Servicio de neurología del Hospital Municipal de Avellaneda "Pedro Florito." Paper. Pp. 583, with 123 illustrations. Buenos Aires: Editor Aniceto Lopez, 1944.

This is a well written and complete textbook on clinical psychiatry. It is excellently illustrated and contains many good diagrams. It consists of thirteen chapters, on early conceptions, psychologic applications in psychiatry, the patient's clinical history, the patient's psychiatric findings, psychic constitutions, manic depressive syndrome, confusional states, deliriums, schizophrenia, dementias, oligophrenic syndrome, epilepsy and alcoholism. The book is up to date and is recommended to psychiatrists who have a reading knowledge of Spanish.

A Text-Book of Histology Arranged Upon an Embryological Basis. By J. Lewis Bremer, M.D., Hersey Professor of Anatomy, Harvard University, Boston. Rewritten by Harold L. Weatherford, Ph.D., Assistant Professor of Anatomy, Harvard University. Sixth edition of "Lewis and Stöhr." Fabrikoid. Price, \$7. Pp. 723, with 598 illustrations. Philadelphia: Blakiston Company, 1944.

This textbook has well merited its position as one of the most important books for medical students since its first appearance, thirty-eight years ago, as the sixth American edition of "Lewis and Stöhr." That edition was written by the eminent scholar Dr. Frederic T. Lewis and has the distinction of being the first book of its kind arranged on an embryological basis. The emphasis of its contents has always been on the necessity of an understanding of the development of each organ described as an introduction to the study of the microscopic structure in the adult. This point of view has proved to be efficiently sound and has enriched the teaching of histology in American medical schools. In the course of time this fundamentally sound idea captured the attention of other authors. Today the consideration of the developmental possibilities of the constituent tissues of adult organs is accepted as common sense pedagogy. Dr. Frederic T. Lewis performed a great service for anatomy in this country in initiating and fostering this vital interpretation of histology. In the same spirit Dr. John L. Bremer presented and enlarged the book through three editions.

The present edition offers a comprehensive discussion of the essential facts of histology. It is rewritten by Dr. Harold L. Weatherford, who by training, experience, pedagogic understanding and the gift of clear, precise writing is unusually well qualified to deal with this subject matter. The author has made available to teacher and student alike the functional concept of histology; he has admirably succeeded in summarizing the recent greatly expanded experimental work in histology and embryology.

There are several distinguishing features in this edition. First there appears an excellent succinct account of the development of the microscope, a careful reading of which will profit each student. Second, there are more than 750 references covering classical as well as modern works. The interpolation of historical citations throughout the book serves to place the textual material in its proper cultural milieu. Among these references one will find the names Aselli, Bichat, Cicero, Corti, Harvey, Hooke, Kircher, Leeuwenhoek, Mascagni, Schleiden, Schwann, Willis, Winslow and Wolff in addition to the names of von Baer, Bartholin, Bell, Diemerbroeck, Eustachius, Fabricius, Fallopius, Malpighi, Pecquet, Ruysch and Vesalius, which were included in the fifth edition. Such historical references find a fitting place in a book which sets a high standard of scientific achievement and should make a strong impression on students who have an appreciation of scientific humanism. Third, the illustrations have been almost doubled, about fifty in color and all particularly well chosen to meet the needs of students. Fourth, the present editor was fortunate in having the special section on the shape of cells written by Dr. Frederic T. Lewis and the section of placentation written by Dr. George B. Wislocki.

The dynamic point of view adopted in the presentation of the contents will unquestionably make a strong appeal to students of medicine, for whom this book was originally planned, forming a sound basis for the study of both physiology and pathology. It will serve equally well, however, the requirements of students of biology not alone as a textbook but also as a tool of research.

The Romance of Medicine: The Story of the Evolution of Medicine from Occult Practices and Primitive Times. By Benjamin Lee Gordon, M.D., Attending Ophthalmologist to the Shore Memorial Hospital, Somers Point, New Jersey. Cloth. Price, \$5. Pp. 624, with 147 illustrations. Philadelphia: F. A. Davis Company, 1944.

This is a learned work about the history of medicine, excellently illustrated and arranged according to a special plan. The book is badly titled, because the author has missed a great deal of what is romantic and dramatic in the development of medicine. However, his chapters on the location of the vital energy, demonology, astrology, symbolism, magic and occult healing condense much material that is not easily available in a single chapter elsewhere. Indeed, the work partakes far more of the philosophy of medicine than of romance. For the subject it discusses it is a most valuable addition to works on the history of medicine.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ALUMINUM COMPOUNDS FOR SILICOSIS

To the Editor:—Is there anything to the claim that aluminum dust is an antidote for silica dust and that silicosis in workers can be prevented by treating them with aluminum dust?

M.D., Troy, Ohio.

ANSWER.—Amply confirmed experimental evidence both in Canada and in this country proves that inhaled metallic aluminum and amorphous aluminum hydroxide will completely neutralize the toxic action of quartz on living tissue. Given prophylactically before the quartz tissue reaction, it will limit the process to simple phagocytosis with no subsequent fibrosis; given after the quartz, aluminum and its amorphous hydrate will arrest the development of silicosis and cause resolution of immature nonfibrous lesions. Treatment does not dissolve silicotic nodules that have already attained maturity. Experience in North America fails to confirm the German reports that aluminum produces any serious effects on the lungs. A limited clinical experience indicates that some cases of silicosis are relieved of symptoms by aluminum therapy. It remains to be proved whether or not certain nonsilicious materials often associated with quartz in industrial dusts may interfere with the inhibitory action of aluminum. Theoretical and clinical evidence suggest that they may and thus may explain some of the failures that have been reported.

PREGNANCY IN WOMAN WITH DOUBLE UTERUS AND CERVIX

To the Editor:—A woman aged 29 who is in her eighth month of pregnancy has a double uterus and a double cervix, which malformation probably corresponds to the uterus bilocularis as illustrated in De Lee's "Principles and Practice of Obstetrics," 1940, page 593, or to the double uterus with double cervix of Taylor, as quoted on page 192 of the 1943 Year Book of Obstetrics and Gynecology. An anteroposterior vaginal septum was removed following spontaneous abortion at two and a half months about two years ago, the septum having been discovered prior to the first pregnancy. The first pregnancy was in the left uterus, and apparently this pregnancy is in the same side. Although I am treating the patient expectantly, I am aware of some of the antepartum as well as the postpartum complications. The Year Book of Obstetrics and Gynecology, 1943, mentions some of them, although it makes no suggestions as to the proper treatment of these cases. I am also aware of the fact that a good many women with similar malformations have gone through labor normally. When she miscarried nearly three years ago she had a severe hemorrhage following the expulsion of the placenta, for which hemorrhage she had to have a blood transfusion. My patient has just finished her eighth month of pregnancy, and it would be highly appreciated if you would please refer this case to an authority on the subject. Pelvimetric measurements appear to be normal. The patient has always been moderately anemic (hypochromic, normocytic anemia). Would it be advisable to perform a conservative cesarean section as soon as labor starts if the fetus is viable? Would you please give opinions of the proper authorities?

M.D., Wisconsin.

ANSWER.—A patient like this should be treated expectantly just as a patient who has a single uterus and a single vagina. An elective cesarean section is definitely not indicated. Dys-tocia does not occur frequently enough in such cases to warrant this radical procedure as the method of choice. In De Lee-Greenhill's Textbook of Obstetrics (ed. 8, Philadelphia, W. B. Saunders Company, p. 534) expectancy is the treatment recommended for this type of case. Stander (William's Obstetrics, ed. 8, p. 712) says that ordinarily there is no interference with the course of pregnancy, and spontaneous labor may be looked for. Much more rarely the nonpregnant horn may block the pelvic cavity and give rise to dystocia similar to that produced by tumors of other origin. Of course, in such cases cesarean section must be performed. Palmer Findley (*Am. J. Obst. & Gynec.* 12:318 [Sept.] 1926) collected 132 cases of uterus didelphys from the literature and added 3 of his own. All represented a complete doubling of the uterus, cervix and vagina and all the patients had been pregnant. These 135 women had 217 full term babies. In 83 cases spontaneous delivery occurred, in 23 cesarean section was performed, 22 women were delivered by forceps or version and extraction, and so on.

In women with this abnormality, abortions are fairly common and labor is prolonged as a result of poor muscular development in the uterus, small rigid cervix and the encroaching

nonpregnant uterus. Since spontaneous delivery is the rule, the management of pregnancy and labor in the uterus didelphys should not differ from that of pregnancy in the normal uterus save in the event of complications.

TRICHOMONAS WITH MIXED VAGINAL FLORA

To the Editor:—In a case of a mixed infection involving and causing a severe leukorrhea in which both *Trichomonas hominis* and *Escherichia coli* have been identified, what laboratory method might be used to identify *Trichomonas hominis* in the stool? In this case, in which the intestinal flora has been altered by the prolonged use of bismuth beta-naphthol, *Escherichia coli* could be obtained from the vagina, the cervical canal and the external meatus. What medicament can be recommended for the destruction of *Escherichia coli*, at least to the extent that it would not be so abundant as to cause uncomfortable symptoms of itching and mucosal irritation of the external urethral meatus and the vaginal mucosa? Does the presence of either *Trichomonas hominis* or *Escherichia coli* alter the vaginal acidity? If so is there any concept as to how the clinician may use the altered acidity? I would appreciate also some references.

M.D., New York.

ANSWER.—Considerable controversy still exists on whether *Trichomonas hominis* can cause vaginal trichomoniasis. Some maintain that it is solely an intestinal inhabitant. The clinical entity of vaginal trichomoniasis in association with *Trichomonas vaginalis* is established. It is quite possible that more than one species of tetratrichomonads may be found in the lower bowel. Thus the necessity for appropriate cultural and morphologic studies are evident.

Escherichia coli may be found frequently in the vagina and vulva. Consequently its presence about the external urethral meatus does not establish pathogenicity. If the urinary tract is completely normal and free from infection and the cervix is perfectly normal, the colon bacilli will disappear as soon as a normal healthy vaginal condition is restored. The normal healthy vagina during the reproductive period of life (excepting at the time of menstruation and shortly after delivery) is normally acid. There is no established incidence of pathologic hyperacidity of the vagina. The vagina in a healthy state is associated with a great preponderance of vaginal bacilli or Doederlein's bacilli. It is agreed by most workers that the pronounced acidity is related to the carbohydrate content of the vaginal epithelium and normal physiologic bacterial action. *Trichomonas vaginalis* presumably will not survive in a pH environment of 4.5, and sharper acidities seem unfavorable to the colon bacilli.

It is assumed that the organism *Trichomonas hominis* mentioned may be *Trichomonas vaginalis*, but in any event the use of alpha or beta lactose in tablets or capsules daily for from two to six weeks and gradual reduction as improvement occurs will produce a high incidence of favorable responses. Douches, table salt (4 tablespoons to 1 quart of water) or alum (1 heaping teaspoon to 1 quart of water) may be used once weekly. Douches are not very effective therapeutically and remove the evidence without correcting the cause. Where there are focal infections in the patient's urethra or bladder or in the cervix, appropriate therapy to these sites may be necessary to prevent recurrence.

The attempt to alter the acidity by acid douches has been successful in some investigators' hands, but an excessive acidity may be detrimental to the normal bacterial flora. The normal vagina will develop its own healthy state unless there are factors which prevent it.

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XANTHINES FOR CORONARY DISEASE

To the Editor:—Is there any evidence that, in the treatment of coronary disease either before or after infarction, the type of xanthine series drugs ought to be changed frequently or at all? For example, if the patient is taking aminophylline for two months or so is there any advantage in changing over to some other type of drug of this series?

M.D., Wisconsin.

ANSWER.—On the basis of experimental and clinical observations, it is likely that prolonged administration of xanthines or habitual use of coffee or tea will often confer a relative diuretic unresponsiveness to xanthine derivatives. However, little is known with regard to the coronary action of these drugs. The controversial literature on this subject has been critically

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reviewed by Boyer (THE JOURNAL, May 29, 1943, p. 306) under the recommendation of the Council on Pharmacy and Chemistry. The evidence that xanthine derivatives exert any favorable influence on experimental and spontaneous coronary disease was found to be inadequate and inconclusive. Obviously before the coronary action of xanthines is elucidated nothing can be stated with finality on the development of fastness to these drugs.

APHAKIA

To the Editor.—An aphakic eye requires about a plus 10.0 sphere correction. Is this all due to the replacement of the lens by a corresponding increase in the volume of the aqueous or has the distance from the anterior to the posterior pole of the eye been decreased? Textbooks give the index of refraction of the lens as from 1.386 to 1.406 at the core and of the aqueous as 1.336. This does not seem to be enough to shift the second principal focus by 4 mm. Is the length of the eyeball increased on accommodation?

M.D., Pennsylvania.

ANSWER.—The changes in aphakia apparently are due to the removal of the lens and not to the replacement of the lens by a corresponding increase in the volume of the aqueous or a decrease in the distance from the anterior to the posterior pole of the eye.

The lens in normal position is equivalent to a +20 D. lens (Gullstrand's schematic eye is 19.11 D and Tscherning's lens is 21.39 D.), but when the lens is removed it requires only an approximately +10. D. lens to correct an eye which was emmetropic. This is mainly because of the fact that the lens is placed 13 mm. anterior to the cornea, which greatly enhances its action. There are two principal reasons why a +10 diopter lens placed before the eye is equivalent to the +20 diopter lens of the eye. One is the increase of the focal distance, i. e. from the lens to the retina, and secondly the lens placed before the eye has a much greater relative refractive index. The lens in air has a relative refractive index of 1.345 to 1, while the ratio of the average effective index of the lens, 1.44, to that of aqueous and vitreous, 1.336, is much less. Divers must have special lenses because their vision becomes blurred when submerged in water. The water has practically the same index of refraction as the aqueous. Fishes overcome this by having an almost spherical lens. An estimate of the correction of an aphakic eye can be obtained by adding +10.00 D. to one-half the power of the required glass previously necessary to neutralize existing ametropia.

There are a number of theories concerning the accommodation of the eye. According to the Helmholtz theory, accommodation is caused by relaxation of the zonule, which permits the lens to become more convex. In the Tscherning theory traction on the zonular fibers is postulated and the lens becomes more convex because of the resistant nucleus and structure of the anterior capsule. Most authorities believe that the accommodative act merely produces change in the curvature of the lens and do not believe that the length of the eyeball is increased in accommodation.

ANAL INSTILLATIONS AFTER HEMORRHOIDECTOMY

To the Editor.—Following the surgical removal of internal hemorrhoids in which raw surfaces remain in the anal canal and lower rectum, would instillation of 30 cc. of 1 per cent aqueous solution of mercurachrome result in sufficient absorption to cause toxicity? Would mercurachrome used in the lower rectum following hemorrhoidectomy have any bacteriostatic property? Following hemorrhoidectomy would 30 to 60 cc. of 2 per cent aqueous solution of sodium chloride instilled in the lower rectum have any bacteriostatic property?

Lieutenant Colonel, M. C., A. U. S.

ANSWER.—The procedure outlined would not be toxic unless the patient is sensitive to the drug. The drug would not be bacteriostatic since there would be little contact with the denuded areas which are within the anal canal. The solution of sodium chloride would not be bacteriostatic, although it might have some mechanical cleansing value.

PROGRESSIVE MUSCULAR ATROPHY

To the Editor.—Will you give me information on the treatment of progressive muscular atrophy? I have under treatment a middle aged man who for the past two years has shown a progressive atrophy of the muscles of the right upper extremity. During the past few months atrophy of the right thigh has been noted. Muscular twitches have been noticed frequently. He has received thiamine hydrochloride 100 to 200 mg intramuscularly and intravenously twice a week. He has been taking vitamin E synthetic 200 mg. daily by mouth, also vitamin A 100,000 units daily by mouth.

Edward H. Weiser, M.D., Sussex, N. J.

ANSWER.—Besides the use of vitamins, particularly vitamin E, and thiamine, already used in the case described, there have been no additional forms of treatment suggested recently for progressive muscular atrophy.

PERSISTENT LACTATION

To the Editor.—A white primigravida, primipara, aged 30, married, had a normal pregnancy, delivery and postpartum period four years ago. She nursed her child for eight months and since then has had a continuous profuse flow of breast milk. She feels perfectly well and is able to work in a war plant and do her own work at home. She had scarlet fever, measles and chickenpox between the ages of 2 and 8. There have been no serious illnesses since then except for an occasional upper respiratory infection. One year ago she was treated for obesity and states that she lost 20 pounds (8 Kg.) in six months. At that time she was given injections, the content of which is unknown, and oral medication consisting either of thyroid or of amphetamine. The menarche began at 12, periods last from twenty-eight to thirty days; there is a three to five day flow, normal in quantity, with a slight dysmenorrhea. There has been no change in menstruation in the past four years. There is no similar lactation history in the rest of the family. The breasts are large, firm and pendulous, without masses; the nipples are erect, with moderate pigmentation of the areola. A thick, white, milky secretion appears at the nipple ducts on slight manipulation. The heart rate is 72 per minute, with regular rhythm. There are no murmurs or enlargements. The blood pressure is 130/80. There is a slight laceration of the cervix; the uterus is normal in size, shape and position; the adnexa are normal. The red blood count is 4,900,000, hemoglobin 85 per cent; the white blood count, 7,400; polymorphonuclear cells 72 per cent, lymphocytes 18 per cent, eosinophils 2 per cent, basophils 1 per cent and monocytes 7 per cent. No basal metabolic test has been made.

M.D., New York

ANSWER.—Except for the patient being overweight, the information conveyed in this query shows that the woman is normal. Her menstruation is normal. There is no record of her basal metabolic rate. Obesity has nothing to do with this continued lactation.

It might be well to give the patient 25 mg of testosterone propionate every other day for six injections. Then one should wait two weeks to see what effect this has on lactation. If it checks the flow, she does not need any further treatment. If there has been no change at the end of two weeks the treatment should be repeated as before.

If the full twelve injections are necessary it may be best to have more information on the patient or to know what reaction she had from the testosterone before more treatment is given.

There are some treatments for lactation which date previous to the advent of endocrinology, such as that with belladonna. These can be found in a good book on gynecology.

MALIGNANT NEPHROSCLEROSIS AND CHRONIC GLOMERULONEPHRITIS

To the Editor.—Could you please refer me to any literature or pathologic reports concerning the superimposition of malignant nephrosclerosis on a kidney previously suffering with chronic diffuse glomerulonephritis?

Captain, M. C., A. U. S.

ANSWER.—The following articles cover the subject of the association of malignant nephrosclerosis and chronic glomerulonephritis:

Horn, Henry, Klemperer, Paul, and Steinberg, M. F.: Vascular Phase of Chronic Diffuse Glomerulonephritis, *Arch. Int. Med.* 70: 260 (Aug.) 1942.

Derow, H. A., and Altschule, M. D.: Nature of Malignant Hypertension, *Ann. Int. Med.* 14: 1768 (April) 1941.

Ellis, Arthur: Natural History of Bright's Disease, *Lancet* 1: 1 (Jan. 3), 34 (Jan. 10) 72 (Jan. 17) 1942.

Mansfield, J. S. Mallory, G. K., and Ellis, L. B.: Differential Diagnosis of Bright's Disease, *New England J. Med.* 229: 387 (Sept. 2) 1943.

THERAPY OF BONE LESIONS OF MULTIPLE MYELOMA

To the Editor.—A man with multiple myeloma suffered a fracture of the twelfth dorsal vertebra and the right clavicle about eight months ago. The x-ray examination shows that these have healed, but he is still in considerable pain in his back and is very weak. He is confined to bed most of the time. Is there any treatment that will help him?

S. Ross Jones, M.D., Port Arthur, Texas

ANSWER.—Roentgen therapy to the areas shown to be involved in the x-ray films usually results in relief of pain. Because of their radiosensitivity the bone lesions of multiple myeloma generally respond favorably and often heal following roentgen therapy.

CONTRACEPTION AND STERILITY

To the Editor.—Will you please tell me whether or not modern methods of contraception are a cause of future sterility or disability.

M.D., New York.

ANSWER.—There is no evidence that modern methods of contraception such as the diaphragm with jelly, jelly alone, suppository or sponge with foam powder are a cause of future sterility or disability.

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PENICILLIN

ITS USEFULNESS, LIMITATIONS, DIFFUSION AND
DETECTION, WITH ANALYSIS OF 150 CASES
IN WHICH IT WAS EMPLOYED

WALLACE E. HERRELL, M.D.
DONALD R. NICHOLS, M.D.
AND
DOROTHY H. HEILMAN, M.D.
ROCHESTER, MINN.

The introduction of penicillin for treatment of bacterial infections is one of the most important developments in chemotherapy. The relative lack of toxicity of penicillin for most tissues is one of its great advantages. This lack of toxicity was apparent to Fleming¹ and to Florey and his associates.² It was further evident from studies carried out in our laboratories, which began early in 1941,³ that penicillin was a highly antibacterial substance and at the same time possessed very low toxicity for tissue as measured by means of tissue culture methods. Although penicillin is exceedingly effective in treatment of some infections, it is ineffective against many others. One of the essential requirements for successful treatment of bacterial infections with penicillin is to limit its use to infections due to those pathogens which are known to be susceptible. At present the susceptible and the insusceptible organisms are essentially those listed in table 1. As the work progresses, other organisms undoubtedly will be added to the list.

The successful use of penicillin is attended by other problems not commonly encountered in the use of therapeutic agents. Penicillin therapy should be confined to institutions as long as it is necessary to administer the material intravenously or intramuscularly. Penicillin cannot be administered by mouth, because it is destroyed by the gastric acids. Neither can it be administered intracolically, since it is destroyed by certain organisms present in the fecal stream.

The large scale preparation of penicillin has been accompanied by many difficulties which have necessi-

tated careful control of release of the material. Because penicillin is extremely labile, it must be protected during its preparation against heat, changes in the pH of the surrounding mediums, oxidizing agents and certain micro-organisms which elaborate substances which result in loss of potency of penicillin.

METHODS OF ADMINISTRATION

Local Application.—The broth filtrates of cultures of *Penicillium notatum* which contain penicillin were applied locally by Fleming¹ as early as 1929. In 1940 the Oxford investigators² reported the successful preparation of a purified penicillin which proved suitable for experimental studies and for treatment of infections due to susceptible organisms. Both the sodium and the calcium salts have been used for local treatment, but the calcium salt is more satisfactory. For local treatment of wounds involving soft tissue and bone and for topical application to infected surfaces, saline solutions containing 250 Oxford units per cubic centimeter are suitable. Recently the British investigators⁴ have used penicillin locally in two other forms: 1. If a dry substance is desired, weighed amounts of penicillin are ground with sulfanilamide in a mortar until a homogeneous powder results. On occasions the final mixture contains as much as 5,000 Oxford units of penicillin per gram. The report by Ungar⁵ suggests that penicillin and sulfonamides may have a synergistic effect. 2. Another preparation which the British have applied locally is a cream containing lanette wax, which contains 100 to 250 units of penicillin per gram.

In treatment of severe and extensive inflammatory lesions, uniformly satisfactory results are more likely to be obtained by systemic penicillin therapy alone or this in combination with local therapy.

Intrathoracic Instillation.—In treatment of suppurative intrathoracic disease, such as empyema, it is desirable to supplement parenteral therapy with instillation of penicillin into the pleural space. In many instances empyema thus can be satisfactorily treated without resorting to surgical drainage. For this purpose, as a rule, 30,000 to 40,000 Oxford units in 30 to 40 cc. of isotonic solution of sodium chloride can be instilled directly following thoracentesis. This procedure is carried out once every twenty-four to forty-eight hours.

Intra-Articular Instillation.—Recently our studies have indicated that fairly adequate antibacterial amounts of penicillin reach the joint fluid following intramuscular or intravenous administration of the material to patients suffering with acute or subacute suppurative disease of joints. The concentration of penicillin in the joint fluid is in some instances approximately half that in the blood. If it is desirable to supplement systemic therapy, however, instillation of penicillin into the joint

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Read before the Section on Miscellaneous Topics, Sessions for the General Practitioner, at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 14, 1944.

Part of the penicillin used in these studies has been furnished by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for experimental investigations recommended by the Committee on Chemotherapeutics and Other Agents of the National Research Council.

1. Fleming, Alexander: On the Antibacterial Action of Cultures of *Penicillium*, with Special Reference to Their Use in Isolation of *B. Influenzae*. *Brit. J. Exper. Path.* 10: 226-236 (June) 1929.

2. Chain, E.; Florey, H. W.; Gardner, A. D.; Heatley, N. G.; Jennings, M. A.; Orr-Ewing, J.; and Sanders, A. G.: Penicillin as a Chemotherapeutic Agent, *Lancet* 2: 226-228 (Aug. 24) 1940.

3. Heilman, Dorothy H., and Herrell, W. E.: Comparative Antibacterial Activity of Penicillin and Gramicidin: Tissue Culture Studies, *Proc. Staff Meet., Mayo Clin.* 17: 321-327 (May 27) 1942; Comparative Bacteriostatic Activity of Penicillin and Gramicidin, *abstr. J. Bact.* 43: 12-13 (Jan.) 1942.

4. Florey, H. W., and Cairns, H.: Penicillin in War Wounds: A Report from the Mediterranean, *Lancet* 2: 742-745 (Dec. 11) 1943.

5. Ungar, J.: Synergistic Effect of Paraaminobenzoic Acid and Sulfapyridine on Penicillin, *Nature, London* 152: 245-246 (Aug. 28) 1943.

is not accompanied by any serious effects. We have instilled as much as 20,000 Oxford units in 10 cc. of isotonic solution of sodium chloride directly into a septic joint after aspiration has been performed. Studies on the length of time that penicillin will remain in the joint following instillation are mentioned later.

TABLE 1.—Antibacterial Action of Penicillin

Susceptible Organisms	Insusceptible Organisms
<i>Neisseria meningitidis</i> (some strains)	<i>Eberthella typhosa</i>
<i>Neisseria gonorrhoeae</i>	<i>Salmonella paratyphi</i>
<i>Neisseria intracellularis</i>	<i>Salmonella enteritidis</i>
<i>Actinomyces bovis</i>	<i>Shigella dysenteriae</i>
<i>Bacillus anthracis</i>	<i>Proteus vulgaris</i>
<i>Bacillus subtilis</i>	<i>Pseudomonas aeruginosa</i>
<i>Clostridium botulinum</i>	(<i>Bacillus pyocyaneus</i>)
<i>Clostridium tetani</i>	<i>Pseudomonas fluorescens</i>
<i>Clostridium perfringens</i> (weichei)	<i>Serratia marcescens</i> (<i>Bacillus prodigiosus</i>)
<i>Corynebacterium diphtheriae</i>	<i>Klebsiella pneumoniae</i>
<i>Vibrio comma</i>	<i>Haemophilus influenzae</i>
<i>Micrococi</i>	<i>Escherichia coli</i>
<i>Streptobacillus moniliformis</i>	<i>Staphylococcus albus</i> (some strains)
<i>Borrelia novyi</i> (spirochete of relapsing fever)	<i>Micrococcus albus</i> (some strains)
<i>Treponema pallidum</i>	<i>Monilia albicans</i>
<i>Leptospira icterohaemorrhagiae</i>	<i>Monilia candida</i>
<i>Spirillum minus</i>	<i>Monilia krusei</i>
<i>Plasmococcus virus</i>	<i>Blastomyces</i>
<i>Ornithosis virus</i>	<i>Mycobacterium tuberculosis</i>
	<i>Streptococcus faecalis</i>
	<i>Brucella melitensis</i>
	<i>Plasmodium vivax</i>
	<i>Toxoplasma</i>

Intrathecal Instillation.—It will be evident, when diffusion of penicillin into the various tissues is considered, that in treatment of meningitis or infections involving the cerebrospinal structures it is essential to supplement systemic therapy by daily instillations of 10,000 to 20,000 Oxford units of penicillin into the spinal canal. This amount of penicillin usually is dissolved in 10 cc. of isotonic solution of sodium chloride. Both the sodium and the calcium salts of penicillin have proved satisfactory for this method of administration.

Subcutaneous Administration.—Penicillin may be administered intermittently or continuously by subcutaneous infusion. However, absorption of subcutaneous fluids is erratic and variable. Moreover, concentrated solutions of penicillin may be irritating when given subcutaneously. It appears, therefore, that the intravenous or intramuscular method of administration is preferable.

Intramuscular Administration.—Intermittent intramuscular administration of penicillin is a simple and practical method. Every three hours, 10,000 or 20,000 Oxford units, in 2 to 4 cc. of isotonic solution of sodium chloride is injected. A standard 20 gage intramuscular needle $2\frac{1}{2}$ inches long is suitable. Local irritation may occur occasionally, and at least eight injections in twenty-four hours are required. The concentration of penicillin in the blood rises rather sharply during the first hour following intramuscular administration and then falls to a very low value during the hour before the next injection is made (fig. 1). Such rather sharp rises and falls of the concentration in the blood of any antibacterial agent are not, as a rule, desirable in the treatment of bacterial infections, particularly severe, overwhelming sepsis.

Intravenous Administration.—Penicillin disappears from the blood even faster after a single intravenous injection than after a single intramuscular injection. Further, intermittent intravenous injection requires eight separate venipunctures per day. This method has been used, however, in some instances with satisfactory results.

The continuous intravenous drip method of administering penicillin, which is used at the Mayo Clinic, has been described elsewhere.⁶ The dose of penicillin given in twenty-four hours by this method has varied considerably with different investigators. For treatment of some types of infection, many investigators believe that administration of 200,000 to 300,000 Oxford units per day is necessary. We have used, as a rule, no more than 80,000 units per day and, in many instances, 40,000 units. When increased supplies of penicillin are available, the problem of dosage may become of less significance. In our early work with penicillin, low doses were employed to spread a small supply of penicillin as far as possible. If subsequent experience indicates that the hazard of delayed recurrence is increased by using low dosage, obviously the amounts used must be increased. We consider, however, that 100,000 units per day is probably the maximal amount of penicillin necessary for treatment of the infections most commonly encountered. Delayed recurrence, in the presence of metastatic lesions, may occur at times regardless of the amount of penicillin used.

Local venous irritation at the site of injection may attend use of the continuous drip method. It seems especially likely to occur with certain batches of penicillin which probably contain impurities. Careful inspection of the intravenous apparatus, and changing the site of injection at the first sign of irritation, usually are sufficient to cope with this difficulty. Although we have administered penicillin for as long as eight days through the same vein and at the same site of injection often it is necessary to change the apparatus every few days. In our experience, venous irritation does not occur in more than 5 to 10 per cent of cases.

The continuous intravenous drip method is used by us almost entirely except when suitable veins are not available. Under these circumstances the intermittent intramuscular method is used. It is our impression that approximately twice as much penicillin is required for satisfactory intramuscular treatment as is required when the intravenous drip method is employed.

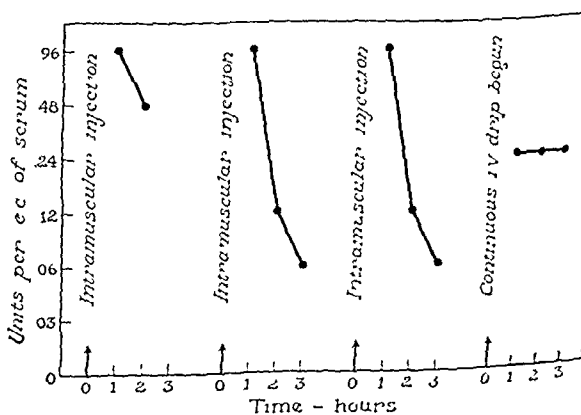


Fig. 1.—The falling serum concentration of penicillin in three hours when 50,000 units is administered by intramuscular injection and the approximately constant serum concentration when the same amount is given by continuous intravenous drip over the same period.

DIFFUSION OF PENICILLIN INTO VARIOUS TISSUES

Historical.—The test of the amount of active penicillin in the blood can be measured by the power of the blood serum to effect bacteriostasis. This is the test

6. Herrell, W. E.: The Clinical Use of Penicillin, an Antibacterial Agent of Biologic Origin, J. A. M. A. 124: 622-627 (March 4) 1944

which lies behind use herein of the terms "penicillin activity," "bacteriostatic activity," "concentration of penicillin" in the blood or in the tissue fluids, "blood level of penicillin," "penicillin content" and so on.

Florey and his associates⁷ made the first report on distribution of penicillin in the body after it had been administered in different ways. From studies with experimental animals they found that penicillin disappeared rather rapidly from the blood after a single intravenous injection but that a large percentage of the amount administered was found in the urine. When penicillin was given by subcutaneous injection, the concentration in the blood was less but a detectable amount was present for a longer period than after a single intravenous injection. Penicillin, when administered by any route, was found in a more concentrated form in the bile than in the blood serum, but the total amount excreted by the liver was small compared with that excreted by the kidneys. Penicillin was absorbed from the intestine when care was taken to protect the penicillin from being acted on by the acid of the stomach. Regardless of the method of administration, penicillin was found in the saliva in lower concentrations than in blood collected at the same time. Tears, pancreatic juice and spinal fluid had no antibacterial activity when penicillin was given intravenously. When a single intravenous injection of penicillin was given to human patients there was an initial high level of penicillin activity in the blood, followed by rapid loss of activity; large amounts of penicillin were excreted in the urine. When penicillin was introduced into the small intestine by means of a duodenal tube, the substance was found in the blood for a longer period than after a single intravenous injection. Penicillin also was detected in the blood after it had been given by mouth along with adequate amounts of sodium bicarbonate.

The Floreys,⁸ reporting further clinical experiences with penicillin, included data on the presence of penicillin in the blood. Rammelkamp and Keefer⁹ and Rammelkamp and Helm¹⁰ extended to human patients the observations made by Florey and his co-workers on experimental animals. In addition, Rammelkamp and Keefer found that when penicillin was injected into inflamed body cavities such as a knee joint, a suprapatellar bursa or an empyema cavity, or when it was introduced into the cerebrospinal fluid, it could be detected in the blood and it was found to be present for as long as twenty-four hours in the region into which it had been injected. There was some evidence that penicillin passed more rapidly from the cerebrospinal fluid into the blood when the meninges were inflamed than when they were not.

Fleming¹¹ reported quantitative determinations of the bacteriostatic power of blood and cerebrospinal fluid of a patient with streptococcal meningitis who had been treated with penicillin. In another study Fleming¹²

described a technic to determine the blood levels of penicillin that result from intravenous and intramuscular injection of different amounts of penicillin. He showed that the presence of leukocytes along with specific antibodies for the test organism added to the bacteriostatic power of the blood when penicillin was present. Thus he was able to explain why a favorable clinical result may occur even though penicillin cannot be detected in the blood by any of the methods available at present. Fleming also found that when penicillin was injected into an axillary abscess its presence could be detected in the abscess twenty-four hours later.

Present Work.—Since it has been demonstrated by others that intermittent intravenous injections of penicillin are not satisfactory for maintaining an adequate level of penicillin in the blood, further investigations were not made along this line. We were interested particularly in determining the penicillin activity of the blood of patients who were receiving penicillin by the continuous intravenous drip method, which has been used, for the most part, in our clinical studies. Using Fleming's adaptation of the Wright slide cell technic, determinations were made on one specimen from each of 11 patients who were receiving 40,000 units a day by continuous intravenous drip. The serum of 6 of these patients gave a value of 0.12 unit per cubic centimeter; in the serum of 1 was 0.06 unit per cubic centimeter, the serum of 2 contained 0.03 unit per cubic centimeter and there was no penicillin in the serum of 2 patients. The blood of 1 of these last 2 patients gave no evidence of activity on three different occasions. When this patient was given 100,000 units of penicillin a day by continuous intravenous administration, the amount of penicillin present in the blood serum was 0.12 Oxford unit per cubic centimeter. In the blood of another patient who was receiving 80,000 units a day by intravenous drip also there was 0.12 unit per cubic centimeter.

A study was made of the penicillin activity of the blood following intramuscular injections. Three patients were given 50,000 units of penicillin by intramuscular injection every three hours, and the bacteriostatic activity of the blood was determined at hourly intervals. The results are presented in figure 1. Even with the comparatively large amounts of penicillin administered, the blood taken one hour after injection did not contain more than 1 unit per cubic centimeter. Significant amounts of penicillin were detected in the blood throughout the period of treatment.

The amount of penicillin in the urine varied greatly with a number of factors. Some of the conditions influencing the results were the amount of penicillin administered, the volume of urine excreted and the presence or absence of bacteria in the urine. The presence of coliform bacteria was accompanied by rapid loss of penicillin activity when the specimen was kept at room temperature. On several occasions urine which contained coliform bacteria and in which the concentration of penicillin was high soon after being voided (as much as 120 units per cubic centimeter) completely lost its penicillin activity after being kept in the icebox overnight.

What is now to be said relates to an earlier paragraph on intrathecal instillation. The observation of Rammelkamp and Keefer that penicillin does not pass from the blood into the spinal fluid in detectable amounts was confirmed. Four persons were given 100,000 units of penicillin a day by continuous intravenous administration. Two specimens of cerebrospinal fluid were

7. Abraham, E. P.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G.; Jennings, M. A., and Florey, H. W.: Further Observations on Penicillin, *Lancet* 2: 177-188 (Aug. 16) 1941.

8. Florey, M. E., and Florey, H. W.: General and Local Administration of Penicillin, *Lancet* 1: 387-396 (March 27) 1943.

9. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Distribution of Penicillin, *J. Clin. Investigation* 22: 425-437 (May) 1943.

10. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Toxicity of Penicillin Administered by Intrathecal Injection, *Am. J. M. Sc.* 205: 342-350 (March) 1943.

11. Fleming, A.: Excretion of Penicillin in Bile, *J. M. Sc.* 205: 31-34 (Oct.) 1943.

12. Fleming, A.: Studies on the Absorption of Penicillin from the Blood, *J. M. Sc.* 205: 31-34 (Dec.) 1943.

13. Fleming, A.: Meningitis Treated with Penicillin, *Lancet* 2: 434-438 (Oct. 9) 1943.

14. Fleming, A., in discussion on Penicillin, *Proc. Roy. Soc. Med.* 37: 101-104 (Jan.) 1944.

taken from each patient while this treatment was in progress but none gave evidence of penicillin activity. When 10,000 units of penicillin was administered intraspinally, penicillin activity could be detected in the spinal fluid twenty-four hours later. Values varied from a trace of penicillin to 0.06 unit per cubic centimeter.

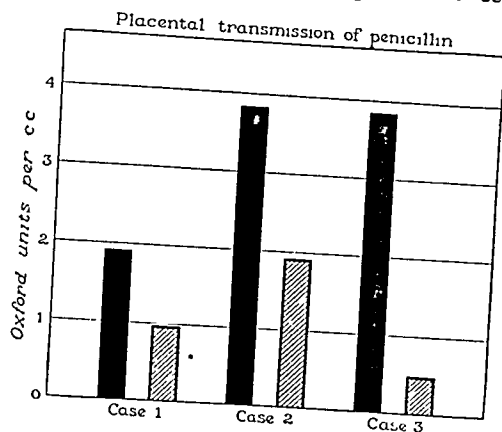


Fig. 2.—Columns represent penicillin found in blood: black columns, mother's blood; shaded columns, blood from umbilical cord. In the different cases 100,000 units of penicillin was administered at different intervals before delivery. In case 1 the interval was forty-five minutes, in case 2 fifteen minutes and in case 3 five minutes. In case 3 both mother's blood and blood from the umbilical cord gave positive complement fixation tests for syphilis.

Forty-eight hours after intraspinal administration of 10,000 to 20,000 units, no penicillin could be detected. Determinations were made three times on each of 3 patients.

In a consideration of the advisability of using penicillin in the treatment of antepartum syphilis, it is of importance to know to what extent penicillin given to the mother will pass into the placental circulation and become available to the fetus. Consequently, three observations were made on human subjects. A large amount of penicillin (100,000 units) was given during a relatively short time to each of 3 patients toward the end of the second stage of labor. At delivery, a short time later, a sample of blood from the umbilical cord and a sample of blood from the anterior cubital vein of the mother were obtained simultaneously. In 1 instance blood from the mother and that from the umbilical cord both gave positive serologic tests for syphilis. The results of these tests are presented in figure 2. It is evident from these studies that penicillin is transmitted through the placenta and is available to the fetus whether the pregnant mother is without evidence of disease or whether she has syphilis.

SUITABLE METHODS FOR DETERMINING THE PRESENCE OF PENICILLIN IN BODY FLUIDS

We have studied various methods described by others of determining the presence of penicillin in body fluids.¹³ Also we have attempted to develop methods that would be more sensitive and more reliable than those used at present.

A number of determinations of penicillin activity were made on various body fluids, using both Fleming's

method and that of Rammelkamp on the same specimens. The same amount of penicillin standard usually caused inhibition of bacterial growth in both tests, but there was often a difference between the two tests of one dilution in either direction. Tests of penicillin activity of blood serum and other body fluids frequently gave different results by the two methods.

In order to determine which method was more reliable, known amounts of penicillin were added to human serum in the laboratory of Dr. Fordyce Heilman and the mixtures were tested as unknowns by both methods. In preparing the samples, normal human serum was divided into five portions. To one portion was added 1 cc. of 0.85 per cent sodium chloride solution for each 4 cc. of serum. A similar proportion of 0.85 per cent sodium chloride solution was added to each of the other portions but, previous to the addition, a different amount of penicillin had been mixed with each quantity of sodium chloride solution and the actual concentration in each instance was recorded. Small amounts of each mixture were put into glass tubes, numbered by code and stored in carbon dioxide. A few tubes were taken at random each day for a period of several days to be tested as unknowns by one of us (D. H.). The standard used in the tests was the same preparation used in making the unknown serum-penicillin mixtures. The results of these experiments are presented in table 2.

Fleming's method was found to be reliable for determining the actual penicillin content of serum.^{13a} The percentage of variation between the results obtained with the slide cell technic and the actual penicillin content did not exceed the 50-per cent variation that is to be expected when serial dilutions are employed. The presence of a large proportion of serum did not decrease the sensitivity of the test in detecting small amounts of penicillin. Fairly small amounts of penicillin (0.06

TABLE 2.—Comparison of Fleming and Rammelkamp Methods Determining Penicillin Content of Serum

Sample Number	Units per Cc. of Serum *	Fleming Method, Units per Cc.	Error, per Cent	Rammelkamp Method, Units per Cc.	Error, per Cent
1.....	4.00	3.84	4.0	3.84	4.0
2.....	0.06	0.06	0	0	...
3.....	0.06	0.06	0	0	...
4.....	4.00	3.84	4.0	3.84	4.0
5.....	1.30	0.96	26.2	0.96	26.2
6.....	1.30	0.96	26.2	0.96	26.2
7.....	0.06	0.06	0	0	...
8.....	1.30	0.96	26.2	0.96	26.2
9.....	1.30	0.96	26.2	0.96	26.2
10.....	0.25	0.24	4.0	0.12	52.0
11.....	0.25	0.24	4.0	0.12	52.0
12.....	0.06	0.06	0	0	...
13.....	0.06	0.06	0	0	...
14.....	4.00	3.84	4.0	7.68	92.0
15.....	4.00	3.84	4.0	7.68	92.0
16.....	0.25	0.24	4.0	0.24	4.0
17.....	0.25	0.24	4.0	0.24	4.0
18.....	0	0	0	0	0
19.....	0	0	0	0	0
20.....	0	0	0	0	0
21.....	0.25	0.24	4.0	0.24	4.0
22.....	1.30	1.92	47.7	1.92	47.7
23.....	4.00	3.84	4.0	7.68	92.0

* Samples were run as unknowns.

unit per cubic centimeter) were not detected by Rammelkamp's method and the results obtained were less uniform than those obtained with Fleming's test. In determining the penicillin content of the blood it is frequently desirable to be able to detect rather small amounts if they are present. It would seem that the Fleming test is superior in this respect to other quantitative methods available at present.

13a. The details of the method will be published elsewhere.

13. Rammelkamp, C. H.: A Method for Determining the Concentrations of Penicillin in Body Fluids and Exudates, *Proc. Soc. Exper. Biol. & Med.* 51: 95-97 (Oct.) 1942. Fleming, A.: In Vitro Tests of Penicillin Potency, *Lancet* 1: 732-733 (June 20) 1942. Dawson, M. H.; Hobby, Gladys L.; Meyer, K., and Chaffee, Eleanor: Penicillin as a Chemotherapeutic Agent, *Ann. Int. Med.* 19: 707-717 (Nov.) 1943. Dawson, M. H., and Hobby, Gladys L.: The Clinical Use of Penicillin: Observations in One Hundred Cases, *J. A. M. A.* 124: 611-622 (March 4) 1944. Gardner, A. D.: Morphological Effects of Penicillin on Bacteria, *Nature, London* 146: 837-838 (Dec. 28) 1940. Fleming, A.: Personal communication to the authors. Abraham, Chain, Fletcher, Gardner, Heatley, Jennings and Florey. Fleming.¹¹

Fleming's method has certain other advantages. It is not necessary to use sterile technic in performing the test and material to be tested does not have to be filtered to insure sterility if it is tested soon after it is received. When the slide cell method is performed with micropipets very small amounts of the fluid to be tested are necessary and but little equipment is needed. The end point is easily determined, and the entire test is complete in eighteen hours. In the Rammelkamp test it is recommended that some of the contents of a few tubes near the end point be cultured on blood agar to insure sterility. This requires an additional twenty-four hour period in order to complete the test.

ANALYSIS OF RESULTS IN 150 CASES

Including the first case reported from the Mayo Clinic in which penicillin was used,¹⁴ we have employed penicillin in the treatment of 150 patients suffering from infections owing to a variety of pathogenic bacteria. The present report deals with the results in these cases. The sodium salt of penicillin was used in 103 of the 150 cases. Two of us (W. E. H. and D. R. N.¹⁵)

was started. With 1 or 2 exceptions, all of these 28 patients were given the daily dose of penicillin previously recommended by us. In only 1 instance was there evidence of a delayed metastatic lesion which might possibly have been associated with the use of inadequate amounts. This case will now be reported:

A woman aged 20 was admitted at the clinic five days after onset of her illness, which had followed self-inflicted trauma to a furuncle on the chin. Subsequent to this trauma, extensive cellulitis had involved the chin, face and neck. Her temperature suddenly had risen to 105 F. Blood taken by her local physician had revealed *Staphylococcus aureus* on culture. She had been treated intensively with sulfadiazine. In spite of this the cellulitis had progressed rapidly and blood cultures had remained positive.

At the time of the patient's admission, the blood culture revealed 10 colonies of *Staphylococcus aureus* per cubic centimeter. The woman was unable to open the mouth or to swallow. She received 60,000 units of the calcium salt of penicillin daily by the intravenous drip method for nine days (total 540,000 units). A blood culture obtained twenty-four hours after use of penicillin had been started revealed 1 colony of *Staphylococcus aureus* per cubic centimeter. Blood cultures taken forty-eight



Fig. 3.—a, appearance of patient at onset of penicillin therapy. Extensive cellulitis of mouth and face with extension into the cervical tissues. *Staphylococcus septicaemia*. Patient gravely ill. b, appearance of patient seventy-two hours after treatment with penicillin was started. c, appearance of patient six days after penicillin therapy was started. Edema and cellulitis have practically disappeared. Complete recovery.

have reported previously on the calcium salt of penicillin. We have found it entirely satisfactory for local, intravenous, intramuscular and intrathecal use. It can be kept at room temperature for long periods without evidence of loss of activity. In studies¹⁶ of cytotoxicity carried out in our laboratories, several preparations of the calcium salt proved less toxic than samples of the sodium salt tested in a similar fashion. The calcium salt was used in 47 of the cases herein reported.

Bacteremia.—At the time of preparation of the present report we had used penicillin in 28 cases of bacteremia. One of these cases will be counted again among the cases of meningitis. The organism identified in 25 of these cases was *Staphylococcus aureus*. An anaerobic streptococcus was isolated in 1 case, hemolytic streptococci in 1 and *Neisseria intracellularis* in 1. The sodium salt of penicillin was used in 16 of the cases and the calcium salt in 12. Twenty-five of the 28 patients recovered satisfactorily (89 per cent). The 3 patients who failed to recover all died of acute vegetative endocarditis and all had presented suggestive evidence of endocarditis at the time penicillin therapy

hour after administration of penicillin had been started were negative, and three subsequent cultures were also negative. The temperature reached normal on the sixth day and remained normal thereafter. There was regression of the edema of the soft parts, and ninety-six hours after treatment had been started the patient could open the mouth without difficulty and was able to take a normal diet (fig. 3 a, b and c). On the twelfth day after admission, the patient was dismissed from the hospital and returned to her home. She felt well and made no complaints.

Several days after the woman had returned home, according to her account, she contracted a chest cold and a productive cough developed. She had a slight chill and a temperature of 103 F. and she also complained of pain in the left side of the thorax. She was treated with sulfamerazine by her local physician but, because of the persistence of her cough, she was readmitted at the clinic eighteen days after her dismissal. Blood cultures on readmission were negative. The bacteremia had not recurred nor was there any recurrence or difficulty with the initial lesion of the face. Roentgenograms of the thorax revealed a very small abscess in the upper lobe of the left lung. On this second admission the temperature was never higher than 98.6 F. Nevertheless, a second course of the calcium salt of penicillin was administered by the intravenous drip method. The patient received 80,000 units per day for seven days (total 560,000 units) and recovered.

The possibility of development of a delayed questionable metastatic lesion may argue in favor of higher doses. On the other hand, it would be interesting to

14. Herrell, W. E.; Heilman, Dorothy H., and Williams, H. L.: The Clinical Use of Penicillin, Proc. Staff Meet., Mayo Clin. 17:609-616 (Dec. 30) 1942.

15. Herrell, W. E., and Nichols, D. R.: The Calcium Salt of Penicillin, Proc. Staff Meet., Mayo Clin. 18:313-319 (Sept. 8) 1943.

16. Herrell, W. E.: The Role of Penicillin in the Treatment of Bacterial Infections, South. M. J. 37:150-156 (March) 1944. Herrell and Nichols.¹⁵

know the incidence of delayed recurrence in the presence of systemic infections of this type when even larger doses had been administered as a routine.

Subacute Bacterial Endocarditis.—Early in the course of our studies, penicillin was used in 4 cases of subacute bacterial endocarditis. In 2 of these cases a nonhemolytic streptococcus was the organism isolated, and in the other 2 cases a micrococcus was isolated. In all 4 cases treatment resulted in failure. The blood cultures in 1 of these cases became negative and remained negative for several months, but the patient died of heart failure. It seems apparent that the usual doses of penicillin are ineffective against subacute bacterial endocarditis. Recent reports from elsewhere, however, indicate that in early cases encouraging results have been obtained when 200,000 units or more of penicillin is given daily.

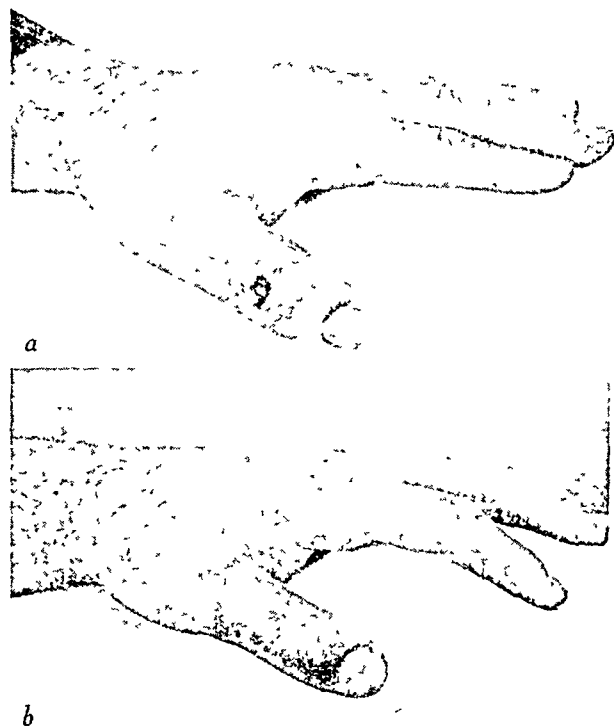


Fig. 4—*a*, draining sinus of thumb associated with osteomyelitis of the interphalangeal joint, cultures positive for *Neisseria gonorrhoeae*. *b*, appearance of thumb after penicillin therapy. Sinus completely healed. No limitation of motion in joint.

Final evaluation of results in the treatment of subacute bacterial endocarditis will depend on further observations.

Severe Cellulitis Without Bacteremia.—Penicillin was used in 25 cases of severe cellulitis without bacteremia. *Streptococcus pyogenes* was the organism isolated in 13 cases. In 9 *Staphylococcus aureus* was the organism of infection. In 3 the infections were with mixed organisms, including anaerobic streptococci, green producing streptococci and Vincent's spirillum. The results were satisfactory in 22 of the 25 cases. Failures or doubtful results were obtained in 3.

Postoperative Wound Infection.—Penicillin has been used in the treatment of 8 very severe postoperative wound infections. In most instances the organism isolated from these wounds was *Streptococcus pyogenes* or *Staphylococcus aureus*. In 5 of these cases both organisms were present. The results were entirely satisfactory in 7 of the 8 cases.

Osteomyelitis.—Penicillin has been used alone or in combination with surgical measures in 22 cases of osteomyelitis. Since penicillin is active against most strains of *Staphylococcus aureus* as well as against the microaerophilic streptococci, it was reasonable to hope early in the course of studies on penicillin that it would prove effective in the treatment of osteomyelitis. Of the 22 cases of osteomyelitis, 11 were of the acute or subacute type. Of the 11, 9 were examples of spreading osteomyelitis of the maxillary or frontal bone, in which the organism isolated was the microaerophilic streptococcus. Penicillin, combined with surgical eradication of the diseased bone, yielded a satisfactory recovery in all 9 cases. There were 2 cases of acute fulminating osteomyelitis involving the long bones due to *Staphylococcus aureus*. Both patients recovered, although it was necessary to resort to surgical drainage in both cases. It may be possible that osteomyelitis of the flat bones responds more satisfactorily than osteomyelitis of the long bones.

In 11 cases of chronic osteomyelitis, penicillin has been used in treatment. The results are listed tentatively as doubtful in 10 and satisfactory in 1. Long observation must precede definite conclusions. In any event, it must be stated again that thorough surgical drainage and eradication of foci play important parts in the successful treatment of this disease.

Gas Gangrene.—Penicillin has been employed in treatment of 6 patients suffering with gas gangrene. Organisms predominantly present in these cases were *Clostridium welchii* and anaerobic streptococci. In 1 of the cases antitoxin was not used. In the remaining 5 cases antitoxin and, in some instances, surgical treatment were combined with penicillin. The results were satisfactory in 4, and failures occurred in 2 instances. We feel, as do the British investigators,¹⁷ that antitoxin must be combined with penicillin. While penicillin may definitely inhibit the growth of the organisms associated with gas gangrene, the neutralizing effect of antitoxin is essential.

Sulfonamide Resistant Gonorrhea.—Since the first report¹⁸ on experimental and clinical effectiveness of penicillin in sulfonamide resistant gonorrhea, penicillin has been found an exceedingly effective agent in treatment of this disease. Although we have treated a total of only 19 patients, all 19 have had satisfactory results. Two of these patients were suffering with gonorrheal arthritis in addition to sulfonamide resistant urethritis. The symptomatic response of the arthritis was striking. The arthritis was cured in both cases without instillation of penicillin into the joint. In 1 instance the arthritis involved the knee and in the other case the interphalangeal joint of the thumb. In this instance a draining sinus was present and cultures from this sinus revealed *Neisseria gonorrhoeae*. Roentgenograms revealed suppurative arthritis, with osteomyelitis. Without surgical intervention, complete healing resulted and roentgenograms after treatment were negative. This lesion, before and after treatment, is represented in figure 4*a* and *b*. It is rarely necessary to use more than 100,000 to 150,000 units of penicillin as a total dose in the treatment of uncomplicated genitourinary neisserian infections. It may be necessary to use more in certain cases in which the condition is complicated by arthritis, endocarditis and so forth.

17. Discussion on Penicillin, *Lancet* 2: 638-639 (Nov. 20) 1943.
18. Herrell, W. E.; Cook, E. N. and Thompson, Luther. Use of Penicillin in Sulfonamide Resistant Gonorrheal Infections, *J. A. M. A.* 122: 289-292 (May 29) 1943.

Actinomycosis.—Twelve patients with maxillofacial, thoracic or abdominal actinomycosis have been treated with penicillin. In 2 cases the treatment is listed as having failed and in 2 as having given satisfactory results. The remaining 8 of the 12 patients have not been followed long enough to justify final statements as to the outcome, and for that reason results in these 8 cases are listed as doubtful. Before a final report on actinomycosis is submitted, it is planned to follow these patients for at least eighteen months. At that time a detailed report on sensitivity of the organism, methods of treatment and results will be made.

Infections of the Urinary Tract—Infections of the urinary tract due to susceptible organisms, such as *Staphylococcus aureus*, respond satisfactorily to penicillin. Seven patients have been treated. In 4 cases the result can be considered entirely satisfactory. In 3 the result was doubtful or failure resulted because of the ineffectiveness of penicillin against gram-negative organisms such as *Proteus*, *Pyocyanus* and *Escherichia coli*.

Meningitis.—Penicillin was used in treatment of 4 patients suffering with meningitis. Two of these cases were examples of meningitis due to *Neisseria intracellularis*, in 1 of which there was an accompanying bacteremia and in 1 of which there was not. The patient suffering with meningitis and bacteremia recovered; the other died. The infection of both patients had resisted sulfonamide therapy. Of the 2 other cases in which penicillin was used, 1 was an example of meningitis due to an anaerobic streptococcus. In this case the spinal fluid became negative under penicillin therapy and it appeared that the meningitis had responded satisfactorily. On the other hand, the patient died of an abscess of a frontal lobe of the brain. The fourth patient suffered with overwhelming meningitis due to staphylococci; the patient died. All these patients received, in addition to intravenous or intramuscular therapy, daily intrathecal injections of penicillin in the amounts outlined in the paragraph on intrathecal instillation.

Pulmonary Suppurative Disease—Penicillin was used in the treatment of 6 patients suffering with pulmonary suppurative disease. Included in this group were pneumonia, pulmonary abscess and empyema. The results were satisfactory in 5 of the 6 cases. Failure occurred in the treatment of a man aged 66 who was suffering from extensive bilateral postoperative pneumonia due to *Diplococcus pneumoniae*, type III. In spite of intensive penicillin therapy, the patient died.

Miscellaneous Diseases.—Listed under miscellaneous diseases are 10 cases, in 6 of which satisfactory results were obtained. Of the 6 patients who obtained satisfactory results 4 had suppurative disease of the middle ear or mastoid process. Infection in all 4 had resisted sulfonamide therapy and all recovered. The organism isolated in 3 of the 4 cases was *Staphylococcus aureus* and, in 1, *Streptococcus pyogenes* was the infecting organism. Of the other 2 of the 6 cases in which the results were satisfactory 1 was an example of extensive ophthalmitis and conjunctivitis due to *Neisseria intracellularis*. In the other the organism isolated from the throat was *Corynebacterium diphtheriae*.

The 4 cases in the miscellaneous group in which failure occurred included 1 case of bilateral otitis media in which the infection was complicated by severe enteritis; the patient was an infant and the causative organism was the *Staphylococcus aureus*. One case represented

severe brucellosis with brucella bacterial endocarditis. In 1 case acute leukemia was accompanied by secondary infection of the jaw, and the fourth failure occurred in a case in which penicillin was tried against induced malaria due to *Plasmodium vivax*. The results in the entire series are listed in table 3.

Comment on the Analysis of Cases.—It is evident from examination of the clinical results just reported that penicillin is an effective agent in treatment of practically all of the staphylococcal infections, whether or not bacteremia is present, with the possible exception of chronic osteomyelitis. These infections include extensive cellulitis, meningitis, pulmonary suppurative disease, suppurative disease of the kidney and infected wounds. Penicillin is equally effective against hemolytic streptococcus infections with or without bacteremia. It appears to be effective in the treatment of gas gangrene and anaerobic streptococcus infections. It is effective against sulfonamide resistant infections with *Diplococcus pneumoniae* and against all of the sulfonamide resistant gonorrheal infections, including complications commonly encountered in this disease.

TABLE 3.—Results of Treatment with Penicillin in 150 Cases

Clinical Diagnosis	Cases	Result ^a		
		Satisfactory	Doubtful	Failure
Bacteremia.....	28	25	..	3
Subacute bacterial endocarditis.....	1	..	..	1
Severe cellulitis without bacteremia....	25	22	1	2
Postoperative wound infection.....	8	7	..	1
Osteomyelitis.....				
Acute.....	11	11	..	..
Chronic.....	11	1	10	..
Gas gangrene.....	6	4	..	2
Sulfonamide resistant gonorrhea.....	19	19	..	..
Actinomycosis.....	12	2	8	2
Infection of urinary tract.....	7	1	1	2
..	4	1	..	3
..	6	5	..	1
..	10	6	..	4
Total.....	151*	107	20	24

* 151 diagnoses because of 1 patient who had both bacteremia and meningitis.

Further observation will be necessary; however, penicillin appears to be promising in the treatment of certain types of infections due to *Actinomyces bovis*. One of the most interesting observations in connection with studies on penicillin is that which concerns its antispirochetal action, first reported by Mahoney, Arnold and Harris.¹⁹ Since the report by Mahoney and his associates,¹⁹ F. R. Heilman and one of us²⁰ have found penicillin to be effective against other spirochetal infections, including relapsing fever and Weil's disease. Our experimental studies on relapsing fever have received confirmation in the reports by Lourie and Collier²¹ and by Augustine, Weinman and McAllister.²² It would appear from the studies of Lourie and Collier and from the studies reported by Heilman and one of us²¹ that penicillin is also effective against *Spirillum minus*, one

19. Mahoney, J. F.; Arnold, R. C., and Harris, A. Penicillin Treatment of Early Syphilis: A Preliminary Report, *Ven. Dis. Inform.* 24: 355-356 (Dec.) 1943; *Am. J. Pub. Health* 33: 1387 (Dec.) 1943.

20. Heilman, F. R., and Herrell, W. E. Penicillin in the Treatment of Experimental Relapsing Fever, *Proc. Staff Meet., Mayo Clin.* 18: 457-467 (Dec. 1) 1943; Penicillin in the Treatment of Experimental Leptospirosis Icterohemorrhagica (Weil's Disease), *ibid.* 19: 89-99 (Feb. 23) 1944.

21. Lourie, J. O. J. The Therapeutic Action of Penicillin on *Spirillum minus* and *Spirillum minus* in the Treatment of Experimental Relapsing Fever, *ibid.* 19: 100-101 (Jan. 7) 1944.

22. Augustine, F. R., and Herrell, W. E. Penicillin in the Treatment of Experimental Infections with *Spirillum minus* and *Streptobacillus moniliformis* (Rat Bite Fever), *Proc. Staff Meet., Mayo Clin.* 19: 257-264 (May 17) 1944.

of the etiologic organisms of rat bite fever. Clinical studies have not as yet been reported on the spirochetal diseases which we have studied in experimental animals. Evidence is accumulating that penicillin has a definite place in syphilotherapy.

CONTRAINDICATIONS TO PENICILLIN THERAPY

On the basis of present knowledge, use of penicillin should not be attempted in treatment of gram-negative bacillary infections such as undulant fever, tularemia or influenza, or in the treatment of infections due to the colon-typhoid-dysentery group of organisms or to Friedländer's bacillus. Infections of the urinary tract due to the gram-negative organisms mentioned do not respond to penicillin therapy. At present it appears that penicillin should not be employed in the treatment of tuberculosis, acute rheumatic fever, lupus erythematosus, pemphigus, mononucleosis, leukemia, ulcerative colitis, malaria, blastomycosis and certain virus infections. On the other hand, the experimental work of F. R. Heilman and one of us²⁴ strongly suggests that penicillin may prove of value in the treatment of at least two virus infections in man; namely, ornithosis and psittacosis.

REACTIONS

Clinical experience with penicillin indicates that its use is not attended by many serious toxic reactions. There has been no evidence of disturbance in the peripheral blood or in the hemopoietic system. On the contrary, penicillin can be successfully used in the presence of pronounced anemia or pronounced leukopenia or even complete agranulocytosis. We have repeatedly seen suppressed leukocyte counts rise during the course of penicillin therapy in the face of overwhelming infection associated with suppression of the bone marrow. No evidence of renal toxicity has been seen.

The local irritation at the site of intramuscular and intravenous injection of penicillin already has been dealt with.

As long as pyrogen free penicillin is used, febrile reactions are not likely to occur. Cutaneous sensitivity to penicillin itself, or perhaps to impurities in the preparations, has been observed in only 2 of 150 cases. In both instances the reaction occurred when penicillin from one commercial source was being administered. When urticaria or dermatitis develops as the result of sensitivity to penicillin, great caution must be used in continuing to administer the material. Persistence of treatment in the face of a generalized cutaneous reaction might lead to development of exfoliative dermatitis. The skin of many persons is known to be sensitive to various molds and mold products. This cutaneous toxic reaction may become of more significance as penicillin is more generally used.

SUMMARY AND CONCLUSIONS

Penicillin therapy should be confined to infections due to pathogens known to be susceptible to its action.

Serious toxic reactions have not followed use of either the sodium or the calcium salt for intrathoracic, intra-articular or intrathecal instillation; nor have such reactions attended local application or intramuscular or intravenous administration in the doses recommended.

Local irritation at the site of injection of either the sodium or the calcium salt of penicillin varies with different batches. Changing the site of administration or changing the product often will terminate this reac-

tion. The only other toxic reaction of any significance is the occurrence of urticaria and irritative dermatitis. The latter reaction is very infrequently seen. Febrile reactions may occur if the penicillin employed is not pyrogen free.

The continuous intravenous drip method of administration of penicillin best maintains a constant level in the blood.

While penicillin diffuses fairly readily into most tissues, it does not reach the spinal fluid following intravenous or intramuscular injection. It is necessary, therefore, to administer penicillin by the intrathecal route at least once daily in treatment of infections involving the cerebrospinal structures. Following intravenous administration of penicillin, antibacterial amounts of the material reach the fluid of septic joints. Likewise, penicillin is transmitted through the placenta from the mother to the fetus. This is important in penicillin therapy for antepartum syphilis.

We believe Fleming's adaptation of the Wright slide cell technic to be the most reliable method of determining the penicillin content of serum.

Of 150 patients suffering with infections owing to a variety of pathogenic bacteria, 103 were treated with the sodium salt of penicillin and 47 with the calcium salt. The calcium salt is handled more easily and appears more stable. Among 28 patients suffering with bacteremia, most of whom had resisted sulfonamide therapy, 25 recovered and 3 died. At present, 80,000 units in twenty-four hours appears to be the most satisfactory dose in cases of bacteremia.

Other bacterial infections for which we have used penicillin include bacterial endocarditis, severe cellulitis, postoperative wound infection, osteomyelitis (acute and chronic), gas gangrene, sulfonamide resistant gonorrhea, actinomycosis, infections of the urinary tract, meningitis, pulmonary suppurative disease and a small group of miscellaneous infections. The results with 107 patients (1 of whom was counted twice, as is explained in table 3) could be considered brilliant or satisfactory; doubtful results or failures occurred with 44.

The use of penicillin should not be attempted in the treatment of gram-negative bacillary infections, including undulant fever, tularemia, influenza, infections due to the colon-typhoid-dysentery group or infections due to *Klebsiella pneumoniae*. Infections of the urinary tract due to gram-negative organisms do not respond to penicillin. It has not proved useful in treatment of tuberculosis, acute rheumatic fever, lupus erythematosus, pemphigus, mononucleosis, leukemia, ulcerative colitis, malaria or blastomycosis.

ABSTRACT OF DISCUSSION

DR. WALTER S. PRIEST, Chicago: I concur that the constant intravenous drip is the method of choice whenever feasible. It is possible to give the intravenous drip as slowly as 8 to 12 drops per minute continuously over periods of days without removing the needle, and that enables one to keep down the fluid intake where that is necessary. I have not been as fortunate as Dr. Herrell in regard to venous irritation, but I find, as he does, that it is not significant and that permanent thrombophlebitis has been a rarity. The reaction subsides promptly. Regarding the intramuscular administration, I have had one experience in which the patient had less irritation by using a more concentrated solution, up to 15 or 16 thousand units per cubic centimeter instead of the more usual 5 thousand. Dr. Herrell's comments on the use of 80 thousand units for twenty-four hours are noteworthy. Perhaps I have fallen into the habit of using larger doses unnecessarily. Since the present ampules are 1-1

24. Heilman, F. R., and Herrell, W. E.: Penicillin in the Treatment of Experimental Ornithosis, *Proc. Staff Meet., Mayo Clin.* 19: 57-65 (Feb. 9) 1944; Penicillin in the Treatment of Experimental Psittacosis, *ibid.* 19: 204-207 (April 19) 1944.

up with a hundred thousand units per cubic centimeter it may be more practical to start with that as the initial twenty-four hour dose, by whatever method given, giving a somewhat larger dose at first and then adjusting the dose up or down as the patient's reaction seems to warrant. Certainly the smallest dose necessary to get the result is the one which should be used. During the past year I have had an opportunity to study the use of penicillin in large doses in 8 cases of subacute bacterial endocarditis. The infective organisms were of the viridans group, the hemolytic streptococcus group and the nonhemolytic nonrenal recrudescant streptococci. These patients received from 100 thousand to 400 thousand units of penicillin in twenty-four hours by the continuous intravenous drip method over a period of not less than four weeks. Out of this group, 2 are apparently cured, 1 is fever and bacteria free but still with an elevated sedimentation rate, 2 appear to be frank failures but are still alive, and 3 have died during the course of treatment. Has Dr. Herrell had any experience in the treatment of bronchiectasis with penicillin?

DR. K. R. BROWN, Des Moines, Iowa: I want to know whether Dr. Herrell finds penicillin effective in cavernous sinus thrombosis complications from facial cellulitis.

DR. WINGATE M. JOHNSON, Winston-Salem, N. C.: Dr. Herrell gave an exhaustive list of diseases in which penicillin is indicated and in which it is not. I don't believe he mentioned one important group, the rickettsial diseases.

DR. WALLACE E. HERRELL, Rochester, Minn.: The point which Dr. Priest raised as to whether or not higher concentrations might have prevented the three failures in the cases of bacteremia deserves consideration. We find that administration of 80 thousand units in twenty-four hours results in a concentration of penicillin which is adequate to inhibit the organisms. Since most of the penicillin is dispensed in ampules of 100 thousand units I am inclined to agree that in general practice it would probably be worth while to use the contents of the 100 thousand unit ampule in preparing the twenty-four hour dose. Excluding bacterial endocarditis, however, we still do not feel that 200 to 300 thousand units per day is necessary to obtain satisfactory results in cases of bacteremia when the agent is administered by the intravenous drip method. The penicillin content of the blood of a patient receiving around 80 thousand units per day will usually be found to be somewhere around 0.06 to 0.12 Oxford unit per cubic centimeter, which is adequate to cause complete inhibition and keep the blood sterilized. In the 3 individuals who failed to recover, necropsy revealed acute ulcerative endocarditis. All 3 had heart murmurs and other clinical signs suggestive of endocarditis at the time penicillin therapy was started. When endocarditis is present at the time one begins penicillin therapy, the results usually will not be satisfactory even when very large amounts of penicillin are administered; at least this has been our experience. Better results will be obtained in the treatment of patients with bacteremia when it is no longer necessary to defer penicillin therapy until sulfonamides have been tried and have failed. I am sure Dr. Priest feels that it is too early to evaluate these results completely, but it is well worth while to continue to treat these patients so long as the organism present in their blood is found to be sensitive to penicillin. Many of the organisms present in subacute bacterial endocarditis are not sensitive. Dr. Priest's remarks concerning the febrile reactions incident to intravenous therapy are extremely important. Old tubing and apparatus not carefully prepared will result in febrile reactions which are not truly due to the penicillin. One must use the same precautions that he would in any intravenous medication. The same precautions must also be rigidly observed when penicillin is given intramuscularly, to avoid the introduction of bacteria or foreign substances which might lead to the development of localized abscesses. It is well known that patients receiving penicillin intramuscularly eight times a day are liable to get "needle shy." We have not had any experience in the treatment of bronchiectasis per se, although we have used penicillin therapy with encouraging results in preparation for lobectomy and in post-operative treatment. Concerning sinus thrombosis, it is safe to say that penicillin has resulted in a cure in many cases. I feel certain that 1 of our patients suffering from staphylococcal bacteremia had a sinus thrombosis and that he recovered as a

result of penicillin therapy. This particular patient never regained vision in one eye. Concerning the effectiveness of penicillin against rickettsial infections, I might call attention to the experimental work reported by Pinkerton and his associates of St. Louis, which indicates that penicillin may prove effective against experimental typhus. Enough data have not yet been accumulated to warrant any statements concerning the clinical use of penicillin in virus infections. A virus may be quite susceptible to the action of penicillin and one may still not obtain a satisfactory clinical result, especially if the virus has become well fixed in the cells by the time one gets an opportunity to treat the patient.

PENICILLIN IN THE TREATMENT OF MENINGITIS

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Reports in the literature pertaining to the clinical effects of penicillin in the treatment of meningitis have in general been confined to observations on small groups of patients or on isolated cases.¹ No definite conclusions may be drawn from them concerning the efficacy of penicillin, the most satisfactory method of treatment or the minimum adequate dosage requirements. However, from in vitro studies demonstrating the pronounced sensitivity of the meningococcus, *Streptococcus haemolyticus*, pneumococcus and some strains of *Streptococcus viridans* to the action of penicillin, this agent should prove to be of considerable therapeutic value in the management of such infections, particularly in individuals who are sulfonamide resistant or sulfonamide reactors.

In a preliminary report² on 31 patients with cerebrospinal fever, we recorded 30 recoveries following the combined intrathecal and intravenous or intramuscular use of penicillin and concluded that penicillin is a safe, effective and highly potent agent in the treatment of this disease. Since then we have treated 40 additional patients with meningitis without a fatality. We are presenting at this time a report of our observations on this entire group of 71 patients.

MATERIAL

Cerebrospinal Fever.—Sixty-five patients in this series presented clinical evidence of cerebrospinal fever (table 1). In almost all patients the onset was sudden, with rapidly developing headache, nausea, vomiting and cervical rigidity of eight to forty-eight hours' duration. Twenty-four patients were semicomatose and 21 were comatose. The temperature on admission ranged between 99 (rectal) and 108 F. (rectal); the average for the group was 102.7 F. (rectal). Petechiae were found in 48 instances, and in 4 of these a purpuric rash was also noted. One patient with most extensive

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1. Keefer, C. S.; Blake, F. G.; Marshall, E. K., Jr.; Lockwood, J. S., and Wood, W. B., Jr.: Penicillin in the Treatment of Infections, *J. A. M. A.* 122: 1217 (Aug. 28) 1943. Lyons, C.: Penicillin Therapy of Surgical Infections in the U. S. Army, *ibid.* 123: 1007 (Dec. 18) 1943. Dawson, M. H., and Hobby, G. L.: The Clinical Use of Penicillin: Observations in 100 Cases, *ibid.* 124: 611 (March 4) 1944.

2. Rosenberg, D. H., and Arling, P. A.: The Treatment of Cerebrospinal Fever with Penicillin: A Preliminary Report, *U. S. Nav. M. Bull.*, August 1944.

purpura presented the clinical picture of the so-called Waterhouse-Friderichsen syndrome. Two other patients who went into shock shortly after admission exhibited widespread petechial eruptions without purpura. Acute arthritis was observed in 15 of the patients on admission. The spinal fluid was turbid in all except 4 patients, and the initial spinal fluid cell count ranged from 21 to 50,100 leukocytes per cubic millimeter. The average

Owing to a lack of serums we were unable to determine the type of meningococci isolated from this group of patients. In 15 patients the clinical picture and spinal fluid findings were characteristic of meningococcal meningitis, but the stained smears and cultures of the spinal fluid revealed no organisms.

Meningitis Due to Other Bacteria.—In 3 patients hemolytic streptococci were recovered from the spinal

TABLE 1—Cerebrospinal Fever

Patient	Age	Duration	Coma	Semi-coma	Petechiae	Temperature	Blood Culture	Cult.	Spinal Fluid		Penicillin (Units)		I	Complications
									Cell Count	Per Cent Polymorphonuclears	Intrathecal	Intravenous and/or Muscular		
1	18	25 hr.	+	—	3+	104	0	+	50,100	98	125,000	500,000	Polyarthritis; thrombophlebitis	
2	18	24 hr.	+	—	3+	104.8	0	+	15,000	92	100,000	900,000		
3	25	2 days	—	—	3+	101.6	0	+	8,000	93	45,000	340,000		
4	19	?	—	—	4+	103	+	+	7,200	90	55,000	380,000		
5	23	26 hr.	+	—	3+	103.8	0	0	19,800	93	15,000	400,000	Hydrocephalus; circulatory failure (autopsy)	
6	20	1 day	—	—	1+	100.8	0	+	17,500	90	25,000	715,000		
7	69	2 days	—	+	0	104.2	0	0	8,600	53	25,000	260,000		
8	18	1½ days	—	+	3+	100.2	0	+	4,800*	75	15,000	260,000		
9	21	43 hr.	—	—	1+	102.4	0	+	11,100	100	10,000	235,000	Fibrinous pericarditis; arthritis	
10	18	1½ days	—	—	0	101.4	0	0	12,800	92	10,000	180,000		
11	18	5 days	—	—	0	104	0	0	1,500	90	10,000	80,000		
12	20	48 hr.	—	+	2+	99.8	0	0	10,100	94	10,000	110,000		
13	18	29 hr.	+	—	1+	105	0	+	10,400	90	10,000	60,000	Transient diplopia, 4th day Acute otitis media, 3d day Acute tonsillitis	
14	18	17 hr.	+	—	0	102.4	+	+	21,000	94	10,000	40,000		
15	20	2½ days	—	+	0	104.8	0	0	3,800	70	10,000	20,000		
16	18	3½ days	—	+	0	105	0	+	11,500	85	50,000	40,000		
17	19	1 day	+	—	3+	105.6	0	+	5,000	100	10,000	10,000	Sixth nerve palsy and paresis Epididymitis; arthritis	
18	25	12 hr.	—	+	2+	103	0	0	6,000	89	10,000	20,000		
19	17	30 hr.	+	—	2+	102	0	+	17,900	90	50,000	200,000		
20	18	21 hr.	—	—	0	99.8	+	+	14,100	96	30,000	40,000		
21	24	20 hr.	—	—	4+	103.8	+	0	66	94	None	230,000	Waterhouse Friderichsen syndrome	
22	29	40 hr.	—	+	1+	105.2	0	0	5,100	90	10,000	40,000		
23	27	34 hr.	—	+	2+	103.4	0	+	23,500	99	20,000	90,000		
24	20	40 hr.	+	—	3+	105	+	+	13,100	93	10,000	90,000		
25	18	24 hr.	—	+	2+	103.2	0	+	14,800	92	20,000	90,000	Arthritis; acute tonsillitis	
26	20	26 hr.	—	—	1+	101	0	+	11,400	95	50,000	115,000		
27	19	22 hr.	—	—	2+	105.2	0	+	18,700	100	20,000	155,000		
28	18	2 days	—	—	1+	104.2	0	0	6,000	92	10,000	100,000		
29	18	7½ hr.	+	—	0	104.8	0	+	18,700	93	10,000	100,000	Polyarthritis Epididymitis, polyarthritis	
30	19	15 hr.	+	—	1+	102.4	0	0	5,100	94	10,000	90,000		
31	18	1 day	—	—	1+	104.8	0	+	12,600	89	40,000	200,000		
32	19	1 day	+	—	1+	103.8	0	0	12,100	100	10,000	70,000		
33	29	24 hr.	+	—	3+	101.6	+	+	22,500	96	30,000	70,000	Sixth nerve paresis Polyarthritis Polyarthritis	
34	17	10 hr.	—	+	1+	102	+	+	2,000	100	50,000	250,000		
35	18	15 hr.	—	—	2+	105.2	0	+	12,100	91	10,000	140,000		
36	19	2 days	—	—	1+	102.6	0	0	6,200	68	10,000	40,000		
37	18	12 hr.	—	+	1+	104	0	+	2,500*	91	10,000	100,000	Thrombophlebitis Acute tonsillitis	
38	22	2½ days	+	—	0	101.6	0	+	31,600	95	40,000	170,000		
39	18	24 hr.	—	—	3+	101	0	+	4,200	90	20,000	100,000		
40	20	16 hr.	—	+	3+	101	0	+	12,500	91	20,000	100,000		
41	17	7 hr.	+	—	0	103	0	+	10,800	99	20,000	100,000	Epididymo orchitis; arthritis Epididymitis, bilateral	
42	18	43 hr.	—	+	0	103.6	0	+	12,200	96	20,000	50,000		
43	18	46 hr.	—	—	1+	101.8	0	0	8,000	63	10,000	40,000		
44	18	4 days	—	+	4+	103.8	0	+	6,400	90	30,000	50,000		
45	32	1 day	+	—	2+	99.4	+	+	8,600	93	50,000	100,000	Epididymo orchitis; arthritis Epididymitis, bilateral	
46	18	1 day	—	—	4+	102.2	0	+	7,000	94	20,000	200,000		
47	35	17 hr.	—	+	4+	100.4	+	+	280	96	50,000	200,000		
48	26	2 days	—	+	4+	100.2	+	+	24,100	80	40,000	200,000		
49	18	1 day	—	—	3+	102	0	+	11,600	92	20,000	200,000	Epididymitis	
50	21	1 day	+	—	0	102.6	0	+	21,600	96	20,000	200,000		
51	18	1 day	—	—	3+	100.6	0	+	12,700	97	20,000	200,000		
52	18	3 days	—	+	0	102	0	+	11,400	96	20,000	200,000		
53	18	1 day	—	+	1+	102.6	0	+	12,200	95	30,000	200,000	Acute tonsillitis	
54	18	4 days	—	—	0	100.8	0	+	9,300*	99	20,000	200,000		
55	18	2 days	—	—	1+	101.8	0	0	9,200	95	10,000	200,000		
56	18	19 hr.	—	—	1+	102.6	0	+	3,300	98	30,000	335,000		
57	18	15 hr.	—	+	1+	104	0	+	11,300	97	20,000	70,000	Polyarthritis	
58	18	8 hr.	—	—	0	101.6	0	+	355	83	10,000	None		
59	20	1 day	+	—	2+	99.8	0	+	20,400	100	50,000	50,000		
60	18	2 days	—	—	0	102	+	+	2,000	96	20,000	50,000		
61	21	1 day	—	—	3+	100.2	0	+	21	0	20,000	2,000,000	Epididymo orchitis; arthritis Arthritis; epididymitis	
62	25	1 day	—	—	+	99	0	+	10,100	92	50,000	55,000		
63	18	1 day	—	+	0	100.2	0	0	2,900	96	10,000	50,000		
64	27	12 hr.	—	+	2+	103.6	0	+	6,000	87	50,000	40,000		
65	21	2 days	—	—	1+	99	0	+	47,100	96	40,000	60,000	Epididymo orchitis	

* Cell count inaccurate owing to pellicle formation. In all cases the temperature was taken rectally. All patients were males.

cell count for the group was 11,700 per cubic millimeter, 88 per cent being polymorphonuclear leukocytes. In 49 patients meningococci were recovered from the spinal fluid, and in 10 of these the blood cultures were positive. In another patient with clinical evidence of fulminating meningococcemia the blood culture was positive although the spinal fluid was sterile and contained only 66 leukocytes per cubic millimeter. In the 3 other patients with clear spinal fluid on admission, meningococci were found in the spinal fluid on culture.

fluid (table 2). In one of these a bacteremia was present, and in another bilateral acute otitis media was found. Two of these patients were semicomatose on admission. The spinal fluid cell counts ranged between 1,000 and 2,290 leukocytes per cubic millimeter.

There were 2 patients with *Streptococcus viridans* bacteremia and meningitis, both of whom were comatose on admission. Although the initial spinal fluid cell count was 450 leukocytes per cubic millimeter in each instance, in 1 it rose to 25,600 within ten hours.

In 1 patient with acute otitis media complicated by meningitis, pneumococci were cultivated from the spinal fluid. This patient was semicomatose on admission and the maximum temperature was 105.2 F. (rectal). The initial spinal fluid cell count was 1,100 leukocytes per cubic millimeter.

METHOD OF TREATMENT

Rammelkamp and Keefer³ have demonstrated that penicillin administered intravenously does not appear in the spinal fluid. Injected intrathecally,⁴ penicillin is slowly absorbed from the subarachnoid space and may be detected in the spinal fluid thirty-one hours later. It is more rapidly absorbed from the spinal fluid of patients with meningitis but may be found in significant amounts twenty-four hours after injection.

For purposes of investigation our plan of treatment varied somewhat in different patients, particularly from the standpoint of dosage. The most satisfactory method of treatment was found to be the following:

1. The initial diagnostic lumbar puncture was performed in the usual manner⁵ and the spinal canal was

injecting penicillin. In several instances the spinal fluid was so viscous that aspiration was necessary.

2. Penicillin was also administered either by the continuous intravenous drip method at the rate of 5,000 units per hour or intramuscularly in doses of 15,000 units every three hours, the dose being reduced to 10,000 units every three hours if improvement was satisfactory. Generally, penicillin was given intravenously (40 units per cubic centimeter in a 5 per cent dextrose solution) for the first eight hours and continued intramuscularly thereafter. Patients with the fulminating type of cerebrospinal fever received penicillin intravenously at the rate of 10,000 units per hour for four hours initially. Owing to a lack of technical facilities the treatment could not be controlled by determinations of the amount of penicillin in the blood and spinal fluid. Instead, frequent clinical observations were made and the temperature, pulse and respirations were recorded every two hours.

In addition to specific therapy, 3,000 cc. of fluid was given daily. To combat shock in patients with fulminating meningococcemia, supportive therapy was

TABLE 2.—Meningitis Due to Other Bacteria

Patient	Age	Duration	Coma	Semi-coma	Temperature	Blood Culture	Spinal Fluid		Per Cent Poly-morpho-nuclears	Penicillin (Units)		Complications
							Culture	Cell Count		Intra-thecal	Intravenous and/or Muscular	
A. Streptococcus Haemolyticus												
66	27	8 days	—	+	103.8	+	+	2,300	93	20,000	400,000	Bilateral acute otitis media
67	27	22 hr.	—	—	104.4	0	+	1,700	79	20,000	170,000	
68	25	4 days	—	+	101.4	0	+	1,000	85	20,000	650,000	
B. Streptococcus Viridans												
69	18	3½ days	+	—	104.0	+	+	450	85	40,000	300,000	Acute pharyngitis
70	24	3 days	+	—	102	+	0	25,600 450	95 97	30,000	200,000	
C. Pneumococcus												
71	35	4 days	—	+	102	0	+	1,100	84	30,000	800,000	Acute otitis media

In all cases the temperature was taken rectally. All patients were males.

drained. Ten thousand Oxford units of sodium penicillin, dissolved in 10 cc. of isotonic solution of sodium chloride, was slowly introduced into the subarachnoid space. Penicillin (10,000 units) was administered intrathecally at twenty-four hour intervals until clinical improvement, sustained fall in temperature and/or a decrease in the meningeal signs were manifest and until the stained smears and cultures of the spinal fluid revealed no organisms. As penicillin was injected intrathecally with each lumbar puncture without awaiting the results of the bacteriologic studies, this plan in effect was tantamount to administering an additional dose of penicillin after the spinal fluid became sterile. We felt that in some instances it was unsafe to withhold treatment pending the results of the spinal fluid cultures. The persistence of coma was regarded as an indication for further intrathecal therapy. In the most severe infections and in those in which coma lasted forty-eight hours or longer, intrathecal penicillin was continued until the spinal fluid was bacteria free on three successive days. It is of paramount importance to drain the spinal canal as completely as is feasible before

given in the form of whole blood, plasma, epinephrine and desoxycorticosterone acetate. Oxygen therapy was employed when indicated.

RESULTS

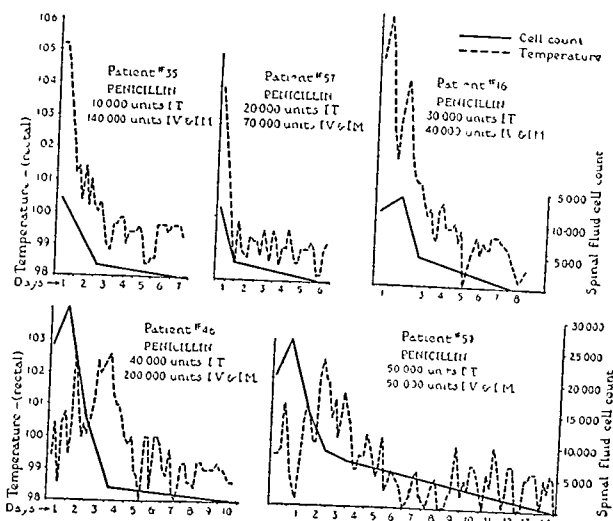
Cerebrospinal Fever.—Sixty-four of the sixty-five patients in this group recovered. The one fatality occurred in a patient who was admitted in a moribund state with clinical and bacteriologic evidence of meningococcemia and with well advanced meningitis. His temperature was 108 F., pulse rate 140 and respiratory rate 66 per minute. He received 12 Gm. of sodium sulfadiazine parenterally in addition to 55,000 units of penicillin intrathecally and 380,000 units intravenously and intramuscularly but died thirty-eight hours after admission. Necropsy disclosed suppurative meningitis, secondary hydrocephalus and edema of the brain and lungs.

In the 64 patients who recovered, progressive improvement was noted soon after penicillin therapy was begun and was generally signalized by the disappearance of the restlessness, stupor and delirium, cessation of vomiting and an abrupt fall in the temperature and pulse rate. Those who were comatose usually regained consciousness within two to twenty-four hours, but in 5 coma persisted for thirty to forty-eight hours and in 1 for four days. In 22 patients the temperature returned to normal within eight to

3. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Distribution of Penicillin, *J. Clin. Investigation* 22: 425 (May) 1943.

4. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Toxicity of Penicillin Administered by Intrathecal Injection, *Am. J. Sc.* 205: 342 (March) 1943.

seventy-two hours. In 16 a low grade intermittent fever (100 to 100.2 F. rectal) remained until the seventh day. In some of the latter patients as well as in those who exhibited a more prolonged febrile course the fever was found to be caused by one or more complications rather than by the meningitis, for the spinal fluid had become sterile and either gave a normal cell count or showed a residual lymphocytosis. Of the 4 patients whose temperature did not fall abruptly, 3 represented very severe infections and 1 showed signs of acute pericarditis and polyarthrititis. Headache disappeared within two to four days and the signs of meningitis subsided completely in two to seven days (average, four days) except in our first 2 patients, who received 100,000 to 125,000 units intrathecally. In the latter the meningeal signs persisted for nine days. Generally there was a prompt reduction in the spinal fluid cell count, as shown in the accompanying chart, and the protein and sugar returned to normal rapidly. In all but the most severe infections this was accompanied by a disappearance of the polymorphonuclear leukocytes within four to seven days. In many a slight



Effect of penicillin on the temperature and spinal fluid cell counts of patients with cerebrospinal fever treated with 10,000, 20,000, 30,000, 40,000 and 50,000 units (total) intrathecally and various amounts intravenously and intramuscularly. Cases representing different grades of severity were selected. In patient 59, fever was prolonged by the presence of arthritis. The increase in the spinal fluid cell count in patients 16, 48 and 49 following the first injection of penicillin intrathecally was noted in 8 other patients. I. T., intrathecal, I. V., intravenous, I. M., intramuscular.

lymphocytosis remained until the tenth to the fourteenth day. In a few of our first patients a recurrence of fever was observed on the fourth to the sixth day if intrathecal penicillin was discontinued too soon. This was controlled by an additional dose of penicillin. As a rule the patients were able to be out of bed on the eighth day unless prevented by complications.

The amount of penicillin administered intrathecally to these patients varied with the severity of the meningeal infection. Thus, 42 patients recovered following only one or two injections of penicillin, 10 required three injections and 9 received four to five injections intrathecally. Through a lack of knowledge of the potency and effectiveness of penicillin, the first 2 patients whom we treated received nine and eleven injections respectively, totaling 100,000 to 125,000 units. Another patient with fulminating meningococcemia recovered with intravenous and intramuscular therapy alone, but in this instance the spinal fluid was

sterile and showed only 66 leukocytes per cubic millimeter. The first 8 patients whom we treated received an intrathecal dose of 15,000 units dissolved in 15 cc. of isotonic solution of sodium chloride initially, but in view of the symptoms and signs of meningeal irritation resulting therefrom the 10,000 unit dose was employed thereafter. It is noteworthy that the amount of intrathecal penicillin necessary for recovery cannot be correlated with the initial spinal fluid cell count. Instead, it seems to depend on the number, type and virulence of the organisms as well as on the immunologic reaction of the host.

An analysis of the bacteriologic effects of penicillin on the spinal fluid obtained twenty-four hours after an intrathecal injection discloses that of 48 patients with positive cultures on admission in 29 the spinal fluid was sterile after one injection of penicillin, in 8 after two injections, in 3 after three injections and in 4 after four injections. However, in 2 others, both with very severe infections, the spinal fluid was sterile after one injection of penicillin but again showed meningococci twenty-four hours after the second injection. In 1 of these the spinal fluid remained sterile after the third injection and in the other after the fifth injection. Further, in 2 patients receiving penicillin every twelve hours the spinal fluid cultures were sterile after the first injection of penicillin, yet the direct smears showed organisms until two and five injections, respectively, were given. These findings suggest that sufficient penicillin is present in the spinal fluid after twelve hours, and occasionally after twenty-four hours, to inhibit the growth of bacteria on the culture medium. It is important, therefore, to correlate the bacteriologic findings with the clinical course and to observe the criteria set forth in our plan of treatment.

The total amount of penicillin administered intravenously and/or intramuscularly varied considerably (20,000 to 900,000 units), the first patients treated receiving the largest amounts. We soon observed that the total dosage could be reduced considerably without risk to the patient. Thus, 55 patients received between 20,000 and 250,000 units of penicillin intravenously and intramuscularly, and 35 of these received 100,000 units or less. One patient, seen several hours after the onset of his illness, recovered without any penicillin intravenously or intramuscularly. Among the patients without bacteremia, no appreciable difference in the outcome and course of the disease was perceptible in the group treated with 20,000 to 50,000 units when compared with those receiving as much as 900,000 units. Nor was there any correlation between the amount of penicillin given by these routes and the amount of intrathecal penicillin required for recovery. Of 10 patients in whom positive blood cultures were found, in 4 the blood was sterile after 40,000 to 50,000 units, in 5 after 70,000 to 125,000 units and in 1 after 250,000 units. In 2 of these the blood was sterile after 105,000 to 110,000 units, but in each penicillin was continued until 200,000 units had been given. As 250,000 units was administered to the patient with the "Waterhouse-Friderichsen syndrome" this dose may represent the maximum amount required to combat the severe forms of meningococcemia unless circulatory failure is too far advanced when the patient is admitted to the hospital.

Acute monarthrititis or polyarthrititis was present in 15 patients on admission and was uninfluenced by the intravenous and intramuscular administration of as much as 900,000 units of penicillin. In 9 individuals

aspiration of the affected knee joints revealed cloudy yellow fluid containing 20,000 to 100,000 polymorphonuclear leukocytes per cubic millimeter. In 8 the aspirated fluid was sterile, while, in the other, meningococci were found on direct smear and on culture. Intra-articular penicillin (10,000 units) was administered to 2 of the patients with sterile synovial fluid, but no beneficial effects were observed. In the patient from whose joint meningococci were recovered, the fluid became sterile after the intra-articular injection of 10,000 units of penicillin on two successive days.

Acute epididymitis, alone or with orchitis, developed in 10 patients. It usually appeared on the sixth to the seventh day of illness, although it was noted as early as the second day and as late as the tenth day. Its occurrence was unrelated to the amount of penicillin administered intravenously and intramuscularly. Three patients were treated with 150,000 to 160,000 units of penicillin over a period of forty-eight hours after the onset of acute epididymo-orchitis, but in none was the period of resolution shortened. In these as in the other 6 patients, spontaneous recovery ensued.

In 3 patients transient diplopia was observed without manifest cranial nerve involvement. Left sixth nerve palsy developed on the second day of admission in 3 of the most severe cases encountered in this series; in 1 of these it was followed twenty-four hours later by paresis of the right sixth nerve. In 2, restoration of function was ultimately complete; in the other, slight diplopia on extreme abduction remained. In 1 patient with fulminating meningococcemia slight transient third nerve paresis was noted. Acute fibrinous pericarditis was found on admission in 1 patient and was unaffected by 715,000 units of penicillin given intravenously and intramuscularly. In 4 patients acute tonsillitis and in another unilateral acute otitis media complicated the convalescence. In 2 instances acute thrombophlebitis of the saphenous vein developed on the fifth and sixteenth days, respectively, and was unrelated to the site of therapy.

Hemolytic Streptococcus Meningitis.—All 3 patients with meningitis due to hemolytic streptococci recovered completely following two intrathecal injections of penicillin. The spinal fluid was sterile twenty-four hours after the first injection, and the temperature returned to normal in four to six days. The patient with bacteremia was given 400,000 units intravenously and intramuscularly over a period of fifty-three hours. Blood drawn for culture on the fifth day was sterile. One of the patients without bacteremia received only 170,000 units of penicillin intravenously and intramuscularly over a period of thirty-nine hours. The temperature returned to normal within six days. The other patient with meningitis secondary to bilateral acute otitis media was given 650,000 units of penicillin intramuscularly over a period of eight and one-half days, although the temperature was normal in five days. No surgical intervention was necessary in this instance.

Streptococcus Viridans Meningitis.—Both patients recovered from meningitis, one following three and the other after four intrathecal injections of penicillin. The blood cultures were sterile in 1 patient after 40,000 units intravenously and in the other after 130,000 units intravenously and intramuscularly. However, penicillin was continued until 200,000 and 300,000 units, respectively, had been administered over periods of three to four days. The temperature returned to normal after

three to five days. No sequelae were demonstrable, though both patients were comatose for twenty-four hours after therapy was begun.

Pneumococcal Meningitis Secondary to Acute Otitis Media.—Although there was only 1 patient with pneumococcal meningitis in our series, it is of interest that complete recovery followed three intrathecal injections of penicillin and 800,000 units given intravenously and intramuscularly over a period of ten and one-half days. The spinal fluid cultures remained positive until the third intraspinal injection of penicillin was administered. In view of the presence of acute otitis media and the possibility of bony suppuration in the areas adjacent to the middle ear, intramuscular penicillin was continued until the temperature remained normal for five days. Convalescence progressed uneventfully thereafter without surgical intervention.

UNTOWARD EFFECTS

In those patients who received penicillin intrathecally every twelve hours, as well as in some individuals who were given intrathecal doses of 15,000 units, more severe and more persistent headache was noted, fever was prolonged and signs of meningitis subsided more slowly. The irritating effect of penicillin on the meninges, when injected intrathecally, was previously demonstrated by Rammelkamp and Keefer⁴ and by Pilcher and Meacham.⁵ Further, we observed that penicillin produced by different manufacturers caused various degrees of meningeal irritation. Thus, the dark brown product was found to have the greatest irritant effect and caused febrile reactions, whereas the pale yellow product had the least demonstrable irritant effect. It is our belief, therefore, that the dark brown powder should not be used intrathecally. Localized thrombophlebitis developed in 4 patients at the site of the continuous intravenous injections but was of minor significance. In 3 patients with cerebrospinal fever mild transitory urticaria was noted within twenty-four hours after therapy was started. Whether this should be ascribed to the penicillin or to the disease per se cannot be stated. No other local or toxic effects were observed.

COMMENT

The effectiveness of penicillin in the treatment of meningococcal infections in man is clearly demonstrated by the recovery of 64 out of 65 patients with cerebrospinal fever. That penicillin is also a potent agent in the control of meningitis caused by *Streptococcus haemolyticus*, *Streptococcus viridans* and *pneumococcus* is indicated by the recoveries observed in our small series of 6 patients. Contrary to the reported experiences with other infections, relatively small amounts of intravenous and/or intramuscular penicillin (40,000 to 250,000 units) were required to sterilize the blood stream in our cases of meningococcemia. Further, it was not necessary to continue penicillin for long periods of time, eight to forty-eight hours of therapy being adequate for these patients. It seems logical to assume that, when combined with intrathecal therapy, these data are equally applicable to the treatment of the nonbacteremic cases, the larger doses being employed in the more serious types of infection. On the other hand, in meningitis secondary to otitis media, intravenous or intramuscular penicillin must be continued until all other sources of infection have been adequately controlled. The majority of patients with cerebrospinal

5. Pilcher, C., and Meacham, W. F.: The Chemotherapy of Intracranial Infections: III. The Treatment of Experimental Staphylococcal Meningitis with Intrathecal Administration of Penicillin, J. A. M. A. 123: 330 (Oct. 9) 1943.

fever received only one or two injections of penicillin intrathecally, whereas in the most severe infections as much as five injections were necessary for recovery. It would appear safer, however, to administer a minimum of two intrathecal injections of 10,000 units each to all patients, even though many of the milder or earlier infections may be controlled by a single injection. As 2 patients without bacteremia recovered following only 20,000 units intravenously and 10,000 units intrathecally, and another recovered with intrathecal therapy alone, the question may be raised whether any intravenous or intramuscular penicillin is indicated in the nonbacteremic cases. Since the clinical picture presented by patients with bacteremia is often indistinguishable from that observed in individuals with negative blood cultures, it is our belief that penicillin should be administered intravenously or intramuscularly to all patients with meningitis. Moreover, it is of the utmost importance to continue penicillin intrathecally until recovery is assured, observing the criteria outlined in our plan of treatment. The findings of Pilcher and Meacham⁵ in experimental meningitis support the latter contention.

The failure of penicillin to alter the course of arthritis or pericarditis was not unexpected. Similar failures have been observed with sulfonamide therapy.⁶ It is probable that neither of these agents is excreted into these spaces in sufficient amounts, if any, to be effective. The occurrence of epididymitis, with or without orchitis, in 10 patients with cerebrospinal fever is of interest, as it is generally regarded as rare. However, it has been found quite frequently in some epidemics⁷ and has also been observed following sulfonamide therapy.

We are fully cognizant of the shortcomings of any therapeutic agent requiring intrathecal administration to achieve its maximum effectiveness. Notwithstanding, it is evident from our experiences that for those patients who develop reactions to the sulfonamides, or in whom sulfonamide therapy is contraindicated for other reasons, for those who are sulfonamide resistant and for those with the fulminating bacteremias wherein a highly potent agent is indicated, penicillin alone may prove life saving. It is not unlikely that, when ultimately prepared in a more concentrated and more highly purified form, free from pyrogens, penicillin may be excreted into the subarachnoid spaces in sufficient amounts following intravenous or intramuscular administration to justify the abandonment of intrathecal therapy. Until then, penicillin should be administered intrathecally as well as intravenously or intramuscularly in the treatment of meningitis.

SUMMARY AND CONCLUSIONS

1. Penicillin was administered intrathecally and intravenously or intramuscularly to 65 patients with cerebrospinal fever (11 with bacteremia), 3 patients with hemolytic streptococcus meningitis (1 with bacteremia and 1 with acute otitis media), 2 patients with streptococcus viridans bacteremia and meningitis and 1 patient with pneumococcal meningitis secondary to acute otitis media. Seventy of the 71 patients recovered. Except for slight unilateral paresis of the sixth cranial nerve in 1 patient, no sequelae were observed.

2. Although one intrathecal injection of 10,000 units controlled some of the milder or earlier infections, a

minimum of two injections is advocated as a precautionary measure. In the severe infections as much as five intrathecal injections (50,000 units) were required. Bacteremia was controlled by 40,000 to 130,000 units of penicillin intravenously and intramuscularly in the majority of instances. In a patient with fulminating meningococemia and "Waterhouse-Friderichsen syndrome," 250,000 units over a period of forty-eight hours was followed by recovery. In meningitis secondary to otitis media more prolonged intravenous or intramuscular therapy is indicated.

3. Intravenous and intramuscular penicillin is ineffective in the treatment of such complications of meningococemia as acute arthritis, epididymitis, orchitis or pericarditis.

4. Penicillin administered both intrathecally and intravenously or intramuscularly is an effective, highly potent agent in the treatment of meningitis. No significant untoward effects are demonstrable.

ADDENDUM.—Since the preparation of this paper penicillin was administered to 11 other patients with cerebrospinal fever. All of them recovered. For 12 patients who had manifested symptoms of meningitis for one week prior to hospitalization, six intrathecal injections of penicillin (60,000 units) were required.

ABSTRACT OF DISCUSSION

DR. WALLACE E. HERRELL, Rochester, Minn.: In view of the sensitivity of *Neisseria intracellularis* to penicillin, it is not surprising that such satisfactory results have been obtained. In 90 per cent of certain cases recovery will follow the use of sulfadiazine or one of the other sulfonamides. Penicillin, however, is an agent which appears relatively free of any serious toxic reactions. When greater supplies of penicillin are available it seems likely that it may be possible, as well as desirable, to treat all of these patients with penicillin without waiting for failures to occur with sulfonamides. This might well result in even greater success than has been attained in the past. It is my opinion that meningitis due to the several organisms isolated in 6 of the 71 cases reported by the authors will be found to respond in a less satisfactory manner to penicillin. It is the experience at the present time that probably no better recovery rates than 60 per cent have been experienced with penicillin. The plan of treatment which has been outlined is an exceedingly satisfactory one. In addition to being administered by the intrathecal route, penicillin also should be given intramuscularly or intravenously in cases of meningitis. It is interesting that Rosenberg and Arling have found that relatively small amounts of penicillin (250,000 units) have been satisfactory. In meningitis due to pneumococci or streptococci I believe that larger amounts of penicillin will be required for the total dose and that the course of treatment will necessarily be somewhat longer. In connection with the arthritis complicating meningococcal meningitis, it is at times difficult to isolate the organism from the joint fluid. Nevertheless I am inclined to believe that there was definitely some beneficial effect. A positive culture was obtained in only 1 of 9 cases of septic arthritis in which cultures were made. Using Fleming's modification of the Wright slide cell technic, my associates and I have made determinations of the concentration of penicillin in the joint fluid of patients receiving this agent. In many instances we have found satisfactory antibacterial amounts of penicillin in the joints. The ratio of blood to joint fluid content is approximately 2 to 1. Urticaria or irritative dermatitis has been observed by us in 2 of 150 cases. I believe this skin reaction will be observed more frequently as more and more penicillin is used. Many people are sensitive to molds and to mold products. One must exercise caution in the presence of irritative dermatitis or severe urticaria. Continuing to force penicillin might result in the development of an exfoliative dermatitis, although at times one may administer penicillin without difficulty to patients who have previously exhibited this reaction.

6. Jaeger, H. W.: Meningococcal Infection of Joints, *Rev. chilena de pediat.* 14: 414 (June) 1943. Rundlett, E.; Gnassi, A. M., and Price, P.: Meningococcal Meningitis: Prognostic Significance of the Spinal Fluid Sugar, *J. A. M. A.* 119: 695 (June 27), 1942.
7. Brinton, D.: Cerebrospinal Fever, Baltimore, Williams & Wilkins Company, 1941, p. 51.

LIEUTENANT COMMANDER DAVID H. ROSENBERG (MC), U.S.N.R.: Dr. Herrell's comments regarding arthritis are of interest. Our observations were based on the duration of the symptoms and signs of arthritis. It is apparent that the effects of penicillin in these complications should also be studied by assays of the penicillin content of the affected joints.

PENICILLIN AND SKIN GRAFTING

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DETROIT

Few patients are more miserable than those with large unhealed third degree burns. Early skin grafting of the burned areas is the only means of quickly returning these patients to a useful life. The longer this procedure is delayed, the greater the immediate threat of death and the ultimate development of scars and deformity. The aim of all treatment, therefore, is reepithelization of the burned areas as promptly as possible. In general, it requires from one to three months to achieve this aim. The chief causes for the prolonged healing are (1) the necessity of deferring grafting until the burned tissue has sloughed and the granulating bed is ready to accept a graft, (2) the necessity for multiple grafting operations because of the lack of sufficient donor sites or the inability of the patient to tolerate grafting of the entire burn at one time and (3) the necessity of grafting the same area more than once because previous grafts have partially or completely failed to take.

Harvey and Connor¹ have devised a method of rapidly removing the dead tissue. Ordinarily it requires fifteen to forty days for burned tissue to separate. By shortening this time to a few days they have overcome one of the greatest factors prolonging the convalescence of burned patients. Although lack of donor sites will always remain as a limiting factor, improvements in the care of burned patients have made it possible and will continue to make it possible to graft larger areas at one operation. The necessity of grafting the same area more than once remains, therefore, as the chief factor tending to prolong the convalescence of these patients.

Skin grafts fail to take because of (1) infection, (2) failure to maintain the graft in contact with the recipient site and (3) the lack of adequate blood supply in the recipient site. Any one skilled in the art of skin grafting has at his command the means of maintaining a skin graft in contact with the recipient site and of insuring an adequate blood supply for the graft. However, in spite of the most careful preparation of the granulating bed a certain number of split thickness grafts are partially or completely lost because of infection.

Padgett² reported the percentage of takes of a large series of split thickness grafts applied to contaminated and to aseptic recipient sites. The analysis of his

results (table 1) shows that infection is the most common cause of partial or complete loss of such a graft.

In approximately one third of the cases in which grafts were placed on contaminated recipient sites, 25 per cent or more of the graft was lost. In only about two thirds of these patients were satisfactory takes obtained in which only 10 per cent or less of the graft was lost. In contrast, satisfactory takes were obtained in 98 per cent of the grafts done on aseptic recipient sites. Furthermore, a review shows that many patients whose first grafts failed also lost large parts of successive grafts. This has been our experience and has usually been due to infection of the granulating bed with sulfonamide resistant *Streptococcus haemolyticus* or *Staphylococcus aureus*.

A large denuded area of the body usually becomes infected with *Pseudomonas pyocyaneus*, *Proteus vulgaris*, *Escherichia coli* or other gram negative bacilli of intestinal origin. There is yet no chemotherapeutic agent that will adequately control these organisms. Fortunately, in most cases they seem to act primarily as saprophytes and do not interfere with the growth of split thickness grafts. Many burns, however, become

TABLE 1.—Padgett's Results

"Fresh Burns"		
Total grafts.....	44	
Percentage of Graft Lost	Number of Cases	
0 - 10	23 (52.3%)	In 31.8% of the cases 21% or more of the graft was lost
11 - 20	2 (4.5%)	
21 - 25	1 (2.3%)	
26 - 40	1 (2.3%)	
41 - 100	12 (27.2%)	
Grafts on Other Obviously Contaminated Recipient Sites		
Total grafts.....	17	
0 - 10	9 (52.9%)	In 35.3% of the cases 21% or more of the graft was lost
11 - 20	2 (11.8%)	
21 - 30	2 (11.8%)	
31 - 100	4 (23.5%)	
Grafts on Aseptic Recipient Sites		
Total grafts.....	151	
0 - 10	148 (98%)	In only 2% of the cases 11% or more of the graft was lost
11 - 25	2 (1.4%)	
26 - 100	1 (0.6%)	

infected with beta hemolytic streptococci, *Staphylococcus aureus* and other coagulase positive micrococci. It is these organisms that are responsible for the failure of skin to grow when transplanted to granulating surfaces. Although the sulfonamides control many hemolytic streptococcus infections, they are ineffective against the occasional resistant strain and against *Staphylococcus aureus* and the other coagulase positive micrococci. While their use has improved the results of skin grafting, especially in the presence of susceptible hemolytic streptococci, it has not solved the problem.

Penicillin is an extremely powerful bacteriostatic and bactericidal agent that has the advantage of acting not only against *Streptococcus haemolyticus* but also against *Staphylococcus aureus*. It seemed important, therefore, to determine whether its administration at the time of skin grafting would improve the percentage of takes.

Nineteen split thickness grafts were performed on 17 patients who were receiving penicillin intramuscularly. In general, grafting was done as soon as the slough had separated, usually three to four weeks after the burn had occurred. In 5 instances, however, grafting was delayed because of (1) the slow separation of a deep slough, (2) the necessity for multiple operations or (3) the admission of patients to our hospital some time after they had been burned. The initial dressings consisted of a wide variety of substances, zinc oxide ointment, glass cloth and cellucotton, zinc

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The work described in this paper was done, under a contract recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Wayne University.

1. Harvey, S. C., and Connor, G. J.: The Healing of Deep Thermal Burns, read before the American Surgical Association, Chicago, May 3, 1944.

2. Padgett, E. C.: *Skin Grafting*, Springfield, Ill., Charles C Thomas, Publisher, 1942.

TABLE 2.—Details of Treatment

Patient A T	Age y	Days Elapsing Between Injury and Grafting d	Location Shoulder and arm	Size of Graft sq in	Cultures Before Grafting M. aurantiacus coagulase —; diphtheroids	Cultures at First Dressing M. aurantiacus coagulase —; diphtheroids; gram + cocci	Dosage of Penicillin 10,000 units every 2 hours for 5 doses before grafting	Percentage of Take
J B	52	..	Foot	30 sq in	Ps. pyocyaneus; diphtheroids	M. aurantiacus coagulase —; M. epidermidis coagulase —; B. coli, diphtheroids	10,000 units every 2 hours for 5 days after grafting None before grafting	100%
M M	30	30	Thighs	35 sq in	M. aurantiacus coagulase —; Ps. pyocyaneus, diphtheroids	M. epidermidis coagulase —; M. aurantiacus coagulase +; Ps. pyocyaneus, diphtheroids; aerobic gram + rods	5,000 units every hour for 12 doses before grafting 5,000 units every hour for 5 days after grafting	95%
W C.	52	65	Leg and foot	90 sq in	M. varians coagulase +; Ps. pyocyaneus; Ps. fluorescens, aerobic gram + rods	Gram + rods; Ps. fluorescens; Ps. pyocyaneus	5,000 units every hour for 18 hours before grafting 5,000 units every hour for 5 days after grafting	100%
B P.	40	25	Shoulders and scalp	51 sq in	M. varians coagulase +; Ps. fluorescens; M. tetragenes, aerobic gram + rod	M. varians coagulase +; Ps. fluorescens; diphtheroids	10,000 units every hour for 18 hours before grafting 10,000 units every hour for 4 days after grafting	95%
I S.	5	20	Back and chest	50 sq in	M. aurantiacus coagulase +; beta hemolytic streptococcus; B. coli, diphtheroids; B. alkaligenes	Ps. pyocyaneus; diphtheroids, M. epidermidis coagulase +	5,000 units every hour for 24 hours before grafting 5,000 units every hour for 4 days after grafting	95%
C H.	10	180	Chest, axilla and arm	125 sq in	M. varians coagulase +, gram + rod, gram neg. rod, M. aurantiacus coagulase +, M. epidermidis coagulase —	M. varians coagulase +; diphtheroids	5,000 units every hour for 5 days before grafting 5,000 units every hour for 9 days after grafting	95% (This loss was due to hematoma beneath graft)
D T.	3	20	Chest and abdomen	30 sq in	M. aurantiacus coagulase +; M. varians coagulase +; diphtheroids, gram neg. rods	M. aurantiacus coagulase +; diphtheroids; B. coli; B. aerogenes	None before grafting 5,000 units every hour for 2 days after grafting, then 2,500 units every hour for 3 days after grafting	100%
B M.	5	60	Knee	50 sq in	Ps. pyocyaneus; M. epidermidis coagulase —	Ps. pyocyaneus; diphtheroids; M. epidermidis coagulase +	5,000 units every hour for 18 hours before grafting 5,000 units every hour for 2 days after grafting, then 2,500 units every hour for 3 days after grafting	95%
R B.	5	40	Arms and shoulders	42 sq in	M. aurantiacus coagulase +; Ps. pyocyaneus	M. aurantiacus coagulase +, Ps. pyocyaneus	5,000 units every hour for 12 hours before grafting 5,000 units every hour for 4 days after grafting	90%
B M.	38	30	Leg	16 sq in	M. aurantiacus coagulase +; M. epidermidis coagulase —, Ps. pyocyaneus; aerobic gram + rod	Beta hemolytic streptococcus, Ps. pyocyaneus; M. epidermidis coagulase —	5,000 units every hour for 12 hours before grafting 5,000 units every hour for 4 days after grafting	95%
C W.	1	19	Chest	30 sq in	M. varians coagulase +; B. coli; beta hemolytic streptococcus, aerobic gram + rod	Ps. pyocyaneus; gram + rod	1,000 units every hour for 12 hours before grafting 1,000 units every hour for 5 days after grafting	95%
L W.	10	25	Trunk	130 sq in	Ps. pyocyaneus	Ps. pyocyaneus	5,000 units every hour for 12 hours before grafting 5,000 units every hour for 5 days after grafting	90%
L W.	10	44	Trunk	30 sq in	Ps. pyocyaneus; Proteus vulgaris	Ps. pyocyaneus; Proteus vulgaris	5,000 units every hour for 12 hours before grafting 5,000 units every hour for 5 days after grafting	100%
R M.	43	25	Thigh	60 sq in	M. varians coagulase +; Proteus vulgaris; Ps. pyocyaneus	Proteus vulgaris; Ps. pyocyaneus	5,000 units every hour for 12 hours before grafting 5,000 units every hour for 5 days after grafting	90%
J. V.	52	28	Hand	28 sq in	Ps. pyocyaneus; M. aurantiacus coagulase +; M. varians coagulase +; B. aerogenes	M. aurantiacus coagulase —; Ps. pyocyaneus; B. aerogenes, aerobic gram + rod	5,000 units every hour for 12 hours before grafting 5,000 units every hour for 5 days after grafting	100%
G R.	10	25	Thighs	160 sq in	Proteus vulgaris; beta hemolytic streptococcus; Staph. aureus	Proteus vulgaris; Beta hemolytic streptococcus, Staph. aureus	5,000 units every hour for 12 hours before grafting 5,000 units every hour for 5 days after grafting	95%
G. R.	10	43	Leg	72 sq in	Proteus vulgaris; Ps. pyocyaneus	Proteus vulgaris; Ps. pyocyaneus	5,000 units every hour for 12 hours before grafting 10,000 units every 2 hours for 5 days after grafting	95%
J. C.	46	25	Arm and hand	64 sq in.	M. varians coagulase +; M. aurantiacus coagulase +; B. coli	None	5,000 units every hour for 24 hours before grafting 5,000 units every hour for 24 hours after grafting	100%

peroxide in a carbowax base, and several other experimental ointments. The dressings were changed at intervals of five to fourteen days, depending on the patient's condition and the requirements of certain studies that were in progress on these patients. In only 2 instances were wet dressings employed. At the time of grafting the dressings were removed in the operating room, and the exudate was washed away with warm isotonic solution of sodium chloride. If the granulations were excessive they were cut away; otherwise the grafts, which were cut with the Padgett dermatome, were placed directly on the granulating bed and held in place with fine silk sutures. A single layer of fine mesh gauze impregnated with zinc oxide ointment was placed next to the graft. This was covered with a few layers of ordinary gauze, and the entire area was then covered with mechanics' waste and wrapped with elastic bandage. The initial dressing was changed on the fourth, fifth or sixth day.

All the patients received penicillin intramuscularly. The dose and the duration of therapy varied somewhat from patient to patient. In general, therapy was started about twelve hours before operation and was continued until the time of the first dressing. The exact details of therapy are given in table 2. With one exception, from 90 to 100 per cent of the transplanted skin took in every instance. The exception occurred in an unco-operative alcoholic addict who had third degree burns of the perineum, both thighs and legs. Only 80 per cent of the grafts placed on his groin and thighs took. The loss in this case was probably due to failure of the dressings to hold the grafts in place.

The loss in all cases occurred at the margin of the grafts where they overlapped the new epithelium growing in from the margins of the burned area. This thin layer of new epithelium prevents the graft from taking, and, unlike normal skin, it is not strong enough to survive when covered with a graft. The result is a slough of both the new epithelium and the margin of the graft. If the new epithelium is cut away and the graft joined to normal skin, this marginal loss does not occur.

The administration of penicillin did not seem to alter the bacterial flora a great deal; cultures taken at the time of the first dressing from the margins of the grafts and from the sutures usually yielded the same organisms that were present on the granulating surface before grafting. In spite of their persistence, they did not seem to affect the growth of the graft. Penicillin, therefore, must hold them in check until the skin has a chance to become established in its new bed.

Though penicillin has been administered to only 17 patients at the time of skin grafting, we believe that its use has the following definite advantages:

1. It permits early grafting. Split thickness grafts can be successfully applied as soon as the slough has separated without further time consuming preparation of the granulating area.
2. It appears to prevent the loss of skin from infection that ordinarily occurs in about one third of the cases in which split thickness grafts are placed on contaminated recipient sites.

Before penicillin was available, we performed over a hundred grafts in patients with third degree burns. Although many excellent takes were obtained, in about one third of the cases 25 per cent or more of the graft was lost because of the occurrence of infection. Therefore the consistency with which excellent takes were obtained in this series of 19 grafts has been very impressive to us. We are presenting the method with the hope that others will try it.

TREATMENT OF OSTEOMYELITIS OF THE FACIAL BONES WITH PENICILLIN

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AND

VIRGIL E. HEPP, M.D.

SAN FRANCISCO

One of the most serious complications of sinusitis is osteomyelitis of the facial bones. This may occur either following surgical operation or by direct extension from the diseased sinuses. In either instance the outlook has always been very poor, for, in spite of sulfonamides and operative intervention, the infection tends to extend throughout the bone and to spread to the brain and meninges, with a mortality in severe cases of as high as 80 per cent. With penicillin, however, there was every reason to think that the prognosis might be greatly altered, for this powerful bacteriostatic agent might hold the infection in check until adequate surgery could be performed. The cases reported here, in which brilliant results were obtained, showed that such was the fact and are reported because they illustrate the technical problems both of penicillin administration and of surgical treatment.

CASE 1.—Development of cellulitis and osteomyelitis following intranasal maxillary antrotomy; no response to sulfonamides; prompt response to penicillin, with three relapses; complete cure after removal of all necrotic bone.

Mrs. M. W., a woman aged 32, housewife, who entered Stanford Hospital on Sept. 24, 1943, had had chronic sinusitis for four years, and four weeks before entry a right intranasal maxillary antrotomy was performed. A week later pain and swelling developed in the soft tissues overlying the antrum. A wisdom tooth was removed, allowing pus to drain into the mouth through the empty socket, but the pain and swelling of the face did not subside. Sulfathiazole 6 Gm. a day for two weeks was administered in another hospital with no improvement. On entry the temperature was 38.5 C. (101.3 F.), pulse rate 86, respiratory rate 16 and blood pressure 115/70. The patient, a slender woman in good general physical condition, was very uncomfortable because of the pain and swelling of the face. The right eye was nearly shut, and the swelling extended down to the mouth, obliterating the nasolabial fold. The overlying skin was red and glistening, and there was definite fluctuation just below the eye. In the mouth, thick yellow pus was draining from the empty tooth socket and from a small fistula in the center of the hard palate. The right nostril was filled with thick yellow purulent exudate. Apart from these local findings, physical examination revealed no abnormalities.

The red blood cell count was 4,100,000; hemoglobin, 70 per cent; white blood cell count, 12,200, with a normal differential count; the erythrocyte sedimentation rate (Wintrobe) was 44 mm. per hour; packed cell volume was 38, and the urine was normal.

Details of the course in the hospital are shown graphically in the accompanying chart. The day following entry a continuous intravenous infusion of penicillin was begun, and two hours later an operation was performed. Widespread destruction of the right maxilla required extensive removal of the lateral and inferior aspects of the maxilla, including the hard palate nearly to the midline. The antrum was filled with pus, and the pterygoid plate, roof and posterior wall of the antrum were removed. The soft tissue abscess of the face was found to drain freely into the space left by removal of

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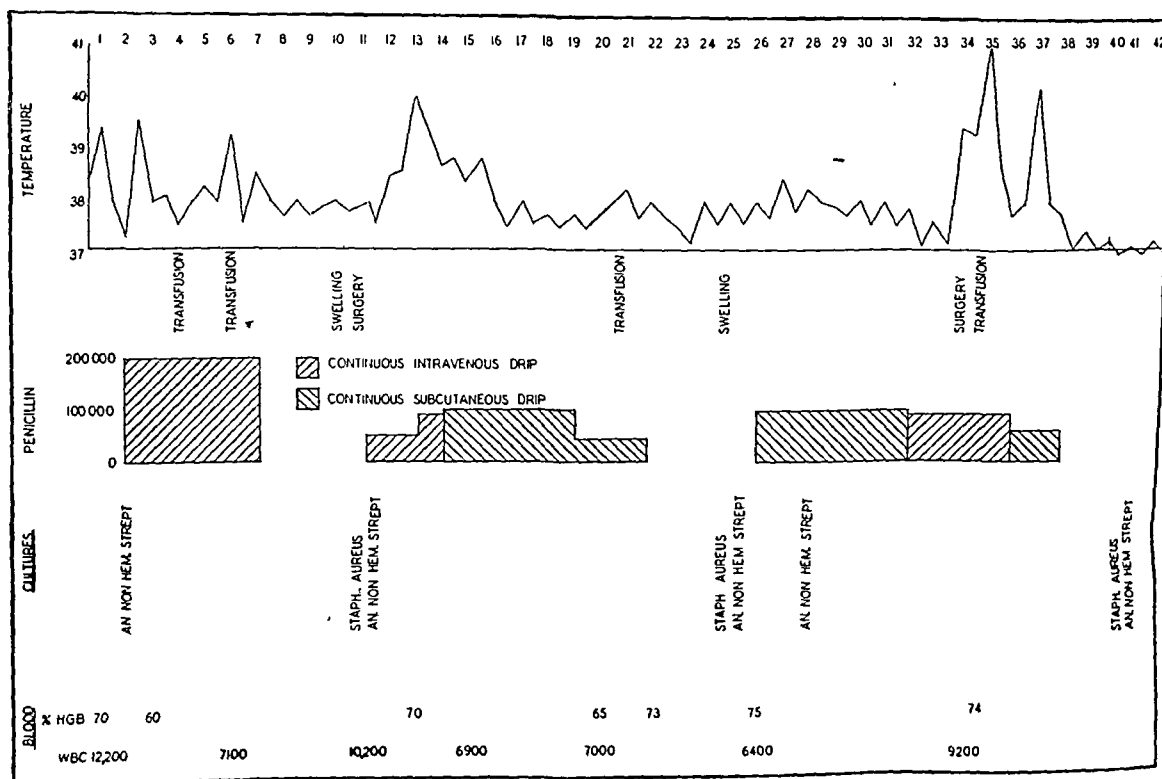
The penicillin was provided by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for clinical investigation recommended by the Committee on Chemotherapeutics and Other Agents of the National Research Council.

bone, and for this reason no external incision was made. Devitalized bone was removed as completely as possible, the sharp edges were smoothed, and the entire cavity was packed with iodoform gauze.

Cultures of bone removed at operation revealed a heavy growth of anaerobic nonhemolytic streptococci. Sections of the bone showed areas of necrosis and inflammation indicative of subacute osteomyelitis.

Administration of penicillin 200,000 units a day by continuous intravenous infusion in 1 liter of isotonic solution of sodium chloride was continued during operation and afterward for five days, a total of 1 million units. Two transfusions and fairly heavy sedation were the only other therapeutic measures. There was, during this five day period, a dramatic diminution of the swelling and tenderness of the face, but a recurrence was predicted because denuded, apparently necrotic, maxillary bone could be palpated with forceps along the infraorbital ridge, high in the cavity left by the operation.

After five days penicillin therapy was instituted for the third time because of a recurrence of swelling, tenderness and pus at the local site. A pure culture of anaerobic nonhemolytic streptococci was obtained from the pus. After seven days' treatment by the subcutaneous route approximately 100,000 units daily, the patient was again operated on. In addition to extraction of all remaining portions of apparently devitalized maxillary bone along the infraorbital ridge, the right upper central incisor and the remainder of the right side of the hard palate were removed. There was again a severe postoperative febrile reaction, probably due to impurities in the penicillin solutions. The penicillin was discontinued two days after the operation, a total of 900,000 units during this ten day course, and a final total of 2,690,000 units since entry. The temperature quickly returned to normal, and this time the swelling and tenderness did not recur. The facial incision healed rapidly, and the patient left the hospital ten days after the last operation. Cultures of the cavity in the mouth still revealed a heavy growth



Course in case 1.

Three days after the penicillin was stopped there was a sudden reappearance of pain and swelling below the right orbit, and an external incision 4 cm. in length was made parallel to, and 0.5 cm. beneath, the lower margin of the orbit. The soft tissues were edematous, but little frank pus was encountered. Cultures revealed large numbers of both anaerobic nonhemolytic streptococci and *Staphylococcus aureus* (coagulase positive). The underlying maxillary bone was denuded of periosteum, but no bone was removed because definite sequestration had not yet occurred. The wound was packed open with iodoform gauze and penicillin therapy was begun by the continuous intravenous route, 50,000 units a day. A severe febrile reaction, probably caused by pyrogenic saline solution in which the penicillin was mixed, necessitated a change to the continuous subcutaneous route after 175,000 units had been administered. A total of 810,000 units was given intravenously and subcutaneously during this course of eleven days. Again the swelling and tenderness disappeared completely, and very little pus was present in the wound. Cultures were repeatedly positive for *S. aureus* (coagulase positive) and anaerobic nonhemolytic streptococci.

of anaerobic nonhemolytic streptococci and *S. aureus* (coagulase positive).

During a six months follow-up period the patient has remained entirely well and is now having a prosthesis made to replace the bony structures which were removed surgically.

CASE 2.—*Failure of sulfonamides and extensive surgical procedures to cure osteomyelitis of maxillary bone following sinusitis; prompt response to penicillin, with several relapses; complete cure with penicillin plus removal of all foci of dead bone.*

B. P., a man aged 23, a dyecaster, who entered the San Francisco City and County Hospital in December 1942, suffered from acute right frontal sinusitis and osteomyelitis of the frontal bone. Surgical exploration revealed a widespread purulent destruction of the frontal bone and a large extradural abscess. Approximately one-half the frontal bone was removed to well beyond the limits of infected bone, and both frontal sinuses were obliterated. The T shaped incision was packed open for the following two months, during which time convalescence was uneventful. A secondary closure of the wound was then accomplished with excellent healing except for a small

persistent fistula in the midline at the juncture of the flaps. Three months after entry the patient was discharged and thereafter followed regularly in the Stanford University outpatient clinic. All attempts to close this fistula met with failure. Repeated x-ray studies revealed a persistent left anterior ethmoiditis and after much investigation it was felt that the fistula was being fed by this ethmoid infection. In July 1943 the patient entered Stanford Hospital, where external ethmoidectomy and excision of the fistulous tract was performed. *S. aureus* was cultured from the operative area. Convalescence was uneventful, and the patient was discharged on the sixth postoperative day. Twelve days after the operation he complained of frontal headache and pain in the left malar region. Examination revealed tender swelling along the left infraorbital ridge and swelling of the operative wound with slight fluctuation. The patient reentered the hospital, where the wound was opened widely, releasing a small amount of purulent discharge. Palpation of the depths of the wound with forceps revealed the frontal process of the left maxilla to be denuded of periosteum, and *S. aureus* was again isolated from the pus. These findings seemed to indicate an osteomyelitic process proceeding along the superior ramification of the left maxilla. Full doses of sulfadiazine (6 Gm. a day) were given over the following eighteen days, and supportive treatment consisted of blood transfusions, vitamin therapy and a high calory diet. Excellent drainage was secured from the infected area. In spite of this treatment the patient's temperature was septic, he appeared very toxic and continued a steady downhill course. The left intraorbital swelling progressed slowly until the left eye was entirely closed and the malar swelling extended into the left temporal region. X-ray examination revealed an early destructive process extending along the left infraorbital ridge laterally to the infraorbital foramen.

S. aureus and anaerobic nonhemolytic streptococci were cultured on two occasions from pus expressed from beneath the swollen area through a small opening just below the medial side of the left orbit. Since sulfonamide therapy seemed ineffectual in controlling the spread of the disease, penicillin was begun on August 30 by continuous intravenous drip, 60 units per cubic centimeter, a total of 50,000 units in seventeen hours. Because of venous thrombosis, a change was then made to the continuous subcutaneous route, 100,000 or 200,000 units daily, a total of 1,385,000 units in twelve days. There was decided subjective improvement within twelve hours after the penicillin was started, and during the next ten days the pain and swelling disappeared completely. Daily cultures revealed *S. aureus* and anaerobic nonhemolytic streptococci for five days, *S. aureus* alone for the next three, and thereafter the drainage ceased altogether.

Five days after penicillin was stopped the pain and swelling recurred, accompanied by a temperature rise to 38.2 C (100.7 F) and white blood cell count of 9,600. Penicillin was started intravenously 200,000 units daily for five days, and the incision below the medial side of the left eye was extended laterally 1 centimeter beyond the infraorbital foramen. Pus obtained at the operation contained only anaerobic nonhemolytic streptococci. Again the swelling and pain promptly subsided, but penicillin therapy was reinstituted after a four day interval, 100,000 units daily for three days, in conjunction with the surgical removal of a sequestrum through the facial incision. The patient then went home but returned again ten days later with swelling and inflammation below the left eye. After five days of continuous penicillin therapy, partly intravenous and partly subcutaneous (total, 320,000 units) he was clinically well and left the hospital because of the death of his mother. Two small sequestra were removed from the outer edge of the wound during this hospitalization. Ten days later there was another typical recurrence, and this time packs soaked with penicillin 100 units per cubic centimeter were placed in the wound every three hours for four days. Surgical exploration revealed two more small sequestra in the outer edge of the wound, but the underlying exposed bone appeared healthy when they were removed. The wound closed quickly when the packs were discontinued, and the patient went home on October 27, having received a total of 3,010,000 units of penicillin. He has been entirely well during a follow-up period of over five months.

CASE 3—Cellulitis of jaw following tooth extraction, involvement of orbit with protrusion and blindness, and osteomyelitis of frontal bone, cure with penicillin after failure with surgical procedures and sulfonamides

G. S., a white man aged 38, a farmer, developed a painful swollen right jaw in September 1943 three days after the extraction of two upper molar teeth. The cellulitis spread rapidly, causing protrusion and complete blindness of the right eye. On September 30 he was admitted to another hospital, where his temperature was 106 F, and x-ray examination showed clouding of the right antrum but no signs of osteomyelitis. After two weeks of therapy with full doses of sulfadiazine he went home much improved but returned four days later with a recurrence of fever, headache and periorbital swelling. X-ray examinations now showed involvement of the right sphenoid and ethmoid cells as well as of the right antrum. During the next two months he was given repeated courses of sulfonamides, and several subcutaneous abscesses below the right eye were drained surgically. On December 5 an incision was made through the right brow, releasing 5 cc of creamy pus, and the underlying bone was covered with granulation tissue. It was felt that the infection had spread from the lateral wall of the right antrum up along the anterior portion of the lateral wall of the orbit. *Staphylococcus albus* (coagulase positive) was cultured from the pus. Following this operation there was again improvement, but he was transferred to Stanford Hospital when the pain and swelling recurred on December 20. The temperature was normal, but there was a definite protrusion of the right eye with eversion of the lower lid and conjunctivitis. A small abscess below the eye was drained and *S. albus* (coagulase positive) was again cultured. X-ray examination revealed cloudiness of the right antrum and ethmoids and both frontal sinuses. There were slight but definite osteomyelitic changes of the frontal bone in the region of the right temporal fossa, and pitting edema was noted over this area. A right intranasal antrotomy was performed, and penicillin was administered by the continuous intravenous route 200,000 units daily for eight days. Intramuscular injections of 15,000 units every three hours were then given for nineteen days, a total of 3,650,000 units by both routes. During this time the redness, pain and swelling disappeared altogether, although the proptosis remained and the x-ray changes persisted. After three weeks at home he returned on Feb. 15, 1944 with a corneal ulcer and diffuse conjunctivitis of the right eye, resulting from insufficient protection afforded by the everted lower lid. In addition to local treatment he received 840,000 units of penicillin intramuscularly over a period of a week. During a follow-up period of two months there has been no evidence of recurrence of infection, and the cornea has been protected by dark glasses and mercuriolate ointment. A plastic repair of the lid will be performed at a later date.

CASE 4—Osteomyelitis of frontal bone and brain abscess following sinusitis, stormy course with convulsions and paralysis of the left arm and leg following surgical operation, cure with prolonged penicillin therapy and aspiration of a second brain abscess

During the second week of December 1943 J. C., a white man aged 51, developed acute frontal sinusitis with severe headache and photophobia. The pain became progressively worse in spite of chiropractic treatment, and a swelling of the soft tissues appeared above the right eye. A typical grand mal seizure on Jan. 12, 1944 prompted transfer to Stanford Hospital, where the patient was found to be semistuporous and had a temperature of 40.5 C (104.9 F). There was stiffness of the neck, but no abnormal reflexes were elicited. Pitting edema was noted over both eyebrows, especially on the right. The white blood cell count was 22,400 and the spinal fluid contained 1,000 cells per cubic millimeter, all polymorphonuclears. Both the blood and the spinal fluid were sterile at this time. A continuous intravenous infusion of penicillin was begun, 100 units per cubic centimeter, and at operation he was found to have right frontal sinusitis with osteomyelitis, extradural and subdural pus, and an abscess of the right frontal lobe. The affected bone was removed as completely as possible, and drains were placed in the abscess cavity. The whole area was irrigated with penicillin solution, and the wound was

covered with penicillin saturated gauze. Anaerobic nonhemolytic streptococci were cultured from the right frontal sinus and brain abscess. Postoperatively penicillin was administered by the continuous intravenous route 300,000 units daily for eight days, and the head wound was irrigated two or three times daily with penicillin 100 units per cubic centimeter. During this time the course was stormy, with continued high fever, clonic convulsions at frequent intervals, periods of Cheyne-Stokes respiration and a flaccid paralysis of the left arm and leg. On January 18 a few nonhemolytic streptococci were cultured from the spinal fluid, and the next day 10,000 units (1,000 units per cubic centimeter) of penicillin was instilled intraspinally. All other cultures of the spinal fluid were sterile. Penicillin was discontinued because of a generalized maculopapular erythematous rash, which appeared six days after therapy was instituted and became progressively worse. After fading promptly, the rash reappeared six days later, when 180,000 units of penicillin from the same manufacturer was administered intramuscularly in thirty-six hours. It again faded promptly and was apparently a dermatitis medicamentosa caused by a certain lot of penicillin. The patient remained disoriented and semicomatose and on February 2 passed into a deep coma, with irregular heart beat and respirations. Pus (8 cc.) was aspirated from a second brain abscess located posterior to the first in the prerolandic area; cultures again revealed anaerobic nonhemolytic streptococci. Penicillin 100 units per cubic centimeter was instilled into the cavity, and no pus was obtained when a second aspiration was attempted three days later. Since it seemed imperative, penicillin therapy was again started, preparations other than the preparation which had previously caused the rash being used, and this time there was no recurrence of dermatitis. The wound was irrigated three times a day with 5 and 10 cc. (100 units per cubic centimeter) and 15,000 units was injected intramuscularly every three hours. Beginning with the aspiration of the second brain abscess and the reinstitution of penicillin therapy there was slow but steady improvement. The spinal fluid, at first cloudy and under increased pressure, gradually cleared so that daily taps were no longer necessary. Convulsions ceased, the patient regained his mental faculties and the paralysis of the left arm and leg gradually disappeared. The exposed anterior pole of the right frontal lobe of the brain prolapsed through the wound at first and became covered with purulent granulations. As this tissue became necrotic it was gently wiped away with sterile gauze. The brain then gradually receded and for two weeks, from February 24 until March 9, a profuse leakage of cerebrospinal fluid occurred from the wound; this gradually decreased and ceased spontaneously. Penicillin was finally discontinued on March 16, two months after the patient was admitted to the hospital. At this time the wound was clean and epithelium was beginning to cover the healthy granulation tissue. Mentally there was complete recovery, and the left arm and leg had regained much of their original strength. The total amount of penicillin administered locally and parenterally was 7,540,000 units.

CASE 5.—*Osteomyelitis of frontal bone following surgical operation for frontal sinusitis; failure to respond to sulfonamides, with fever and bacteremia; prompt response to penicillin; sequestrectomy later with a second course of penicillin.*

E. A., a man aged 53, developed a swelling over the right eye in March 1943, which subsided in four days. In September the pain and swelling recurred and this time did not respond to conservative therapy. On October 21 in another hospital both frontal sinuses were opened widely and the anterior ethmoid cells removed. Two weeks later the patient developed a low grade fever, headaches and edema over the frontal bones. Subacute osteomyelitis was diagnosed, and the process continued to spread in spite of intensive therapy with sulfonamides. He entered Stanford Hospital Jan. 21, 1944 with a temperature of 38.5 C. (101.3 F.), pitting edema over the forehead and a draining sinus above the medial side of the right eye. Anaerobic nonhemolytic streptococci were cultured from the blood and from the draining sinus; *S. aureus* (coagulase positive) was also isolated from the latter site. The blood count was normal, but both the blood and the spinal fluid Wassermann reactions were positive. X-ray examination showed an exten-

sive widespread, moth-eaten destruction of the frontal bone, most pronounced on the right. A continuous intravenous infusion of penicillin was started January 22, 200,000 units daily for twelve days, a total of 2,400,000 units. Intramuscular injections were then given, 15,000 units every three hours for a week, a total of 760,000 units. For the first eight days, penicillin (100 units per cubic centimeter) was also injected into the draining sinus, 4 to 10 cc. twice a day. During this time his temperature subsided to normal, headache disappeared and drainage ceased. He left the hospital but returned on February 29 for the removal of several large sequestrums of the frontal bone through an incision just above the right eyebrow. In conjunction with surgical operation intramuscular penicillin was again given, 120,000 units daily for fourteen days, a final total of 4,847,000 units for both entries. *S. aureus* (coagulase positive) was cultured from the sequestrums, and sections showed changes characteristic of chronic osteomyelitis with sequestration. The postoperative course was uneventful, but x-ray examination revealed that not all of the sequestrums had been removed. The wound is now healed and the patient is entirely well, but the follow-up period of six weeks is too short to be sure that there will be no further recurrences. The course of the asymptomatic neurosyphilis will also be followed with great interest.

COMMENT

The fundamental principles underlying the treatment of osteomyelitis of the facial bones are well illustrated by these 5 cases. In contrast to the sulfonamides, penicillin prevents further spread of the infection, so that either before or after sequestration has occurred devitalized bone can be removed surgically. Relapses are likely to occur until all the necrotic bone is gone. Surgical procedures are probably best postponed until the patient has had three or four weeks of penicillin therapy and sequestration has occurred, since there is then a better possibility of removing all the devitalized bone at one time.

Penicillin dosage is still controversial. The first 2 patients were given small amounts for only a few days, as a result of which there were frequent relapses. Prolonged treatment with larger doses prevented relapses in the other 3 cases and possibly shortened the course of the disease. The present policy in this clinic is to administer 200,000 units daily by continuous intravenous drip for ten days to two weeks, followed by 15,000 units intramuscularly every three hours (120,000 units daily) for another two or three weeks. If surgical treatment is delayed until sequestration has occurred, penicillin should be continued for at least a week postoperatively.

The only toxic reaction observed was a generalized maculopapular rash (case 4), which appeared six days after treatment was begun and faded promptly when penicillin was discontinued. The rash did not recur when the patient was given penicillin prepared by a different manufacturer.

In cases 1, 2, 4 and 5 anaerobic nonhemolytic streptococci were probably primarily responsible for the osteomyelitis, with *S. aureus* (coagulase positive) also present in cultures from sinuses communicating with the skin. These same organisms were isolated by Williams and Nichols,¹ who also report excellent results with penicillin. *S. albus* (coagulase positive) was the only organism recovered in case 3.

The results in these 5 cases would seem to justify the hope that the present high mortality rate in cases of acute, subacute and chronic osteomyelitis of the facial bones will be drastically reduced when supplies of penicillin become generally available.

1. Williams, H. L., and Nichols, D. R.: Spreading Osteomyelitis of the Frontal Bone Treated with Penicillin, *Proc. Staff Meet., Mayo Clin.* 18: 467 (Dec. 1) 1943.

SUBACUTE BACTERIAL ENDOCARDITIS

INHERENT DIFFICULTIES IN PROGNOSIS; A REPORT
OF TWO RECOVERIES AND TWO DEATHS

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Since the advent of sulfonamide therapy, a slowly increasing number of carefully studied patients who have recovered from subacute bacterial endocarditis have been the subject of reports. Patients living and well one year after treatment are considered recovered. The most discouraging report comes from Galbreath and Hull,¹ who had 42 deaths in 42 patients treated with sulfonamides. The experiences of Smith, Sauls and Stone² are more encouraging. They add two cures to the 35 authentic instances of recovery which they could find in the literature.

Several plans of treatment, all utilizing the sulfonamide drugs, have been described. Bierman and Baehr³ report some successes with combined physically induced pyrexia and chemotherapy. I have used this method on 2 patients, both of whom died but not for several weeks after hypertherm treatment was discontinued. These 2 fatal cases are briefly summarized to illustrate the point that treatment was vigorous and yet of no avail.

FATAL CASES

CASE 1.—Mrs. M. C., aged 33, a private patient hospitalized June 7, 1941 in Youngstown Hospital, had rheumatic fever at the age of 10. Fourteen weeks before admission to the hospital she had several teeth removed. Her symptoms of fever, malaise and chilliness developed soon after this dental experience. Blood cultures were found positive for *Streptococcus viridans* on three different occasions. She was given sulfonamide drugs totaling 65 Gm. in a period of nine days. The blood sulfadiazine level was as high as 27.4 mg. per hundred cubic centimeters. During this period of high concentration of the drug in the blood, hypertherm treatments were given in the Kettering fever therapy cabinet. The body temperature was elevated 105 to 106 F. each day. The patient died at home approximately two months after the last treatment. There was a short remission of symptoms and signs for a period of one week following intensive treatment.

CASE 2.—M. M., a Negro girl aged 17, admitted to Youngstown Hospital, South Side Unit, Jan. 24, 1943 with the history of a previous admission at the age of 12 for treatment of rheumatic fever and endocarditis, had been examined in the heart clinic in 1941 because of "spitting of blood clots." X-ray examination of the lungs was negative at that time. Aortic and mitral diseases were present. She had an uneventful pregnancy and labor with a living child in March 1942. Three weeks before admission she was said to have had pneumonia. The provisional diagnosis on admission was subacute bacterial endocarditis. This was confirmed by the clinical course and five blood cultures positive for *streptococcus viridans*. During her four months in the hospital a total of 236.5 Gm. of sulfonamide drugs was given. The highest blood level was 19.3 mg. of sulfadiazine per hundred cubic centimeters. The patient was in the hypertherm cabinet ten times, the temperature each time varying between 105 and 106 F., for a total of nineteen and one-half hours. Five blood transfusions averaging 370 cc. were given by the indirect method. The patient died on

May 10, 1943, twenty-four days after the last hypertherm treatment, with no evidence that treatment had influenced the course of the disease in any manner.

Orgain and Poston⁴ stress the importance of preliminary in vitro experiments to determine the most effective drug and its optimal chemical level of inhibitory action.

In the report of Dick⁵ the patient had an initial infection of his right hand, as did 1 of my patients. Dick gave 40 Gm. of sulfadiazine in one dose, a method which was found ineffective by Hull, Bayley and Holoubek.⁶

CASES WITH RECOVERY

I have had 2 cases of subacute bacterial endocarditis in the past three years in which recovery occurred. These 2 are reported together because of certain contrasts. The first record is of a man shown in person at the 1941 meeting of the American Heart Association in Cleveland. He had a definite rheumatic fever history and may be fairly classified as presenting a classic example of subacute bacterial endocarditis.

The second case had a much more abrupt onset and had as a predisposing factor a patent ductus arteriosus. This case is particularly interesting at the present time because of the possibility of preventing further attacks by tying off the patent ductus. Both cases were treated with sulfonamide therapy, one with moderate doses over a long period of time and the other with larger doses given intravenously for seven weeks. Both of these patients are living and have been at work for more than one year.

CASE 3.—F. W. B., a man aged 47, was first examined in 1934, when he observed that he was too tired after his usual tennis game. No enlargement of the heart and a soft diastolic aortic murmur were recorded at that time. On the basis of a history of a severe attack of rheumatic fever with "dropsy" and a "murmur" at the age of 12, the diagnosis of chronic rheumatic valvulitis was made. The patient was instructed to reduce his physical activities; this restriction he accepted. He was urged to use less nicotine than two packs of cigarettes a day; this advice he did not accept. He was comfortable until 1936, when he had a stormy painful seizure of renal colic and passed a small calculus. In 1936 he had an appendectomy with uneventful recovery. There were no signs of increase in the pathologic condition of the heart noted at that time.

In October 1939 he developed a painful fibrositis and tenosynovitis in his left forearm. He had not completely recovered from this illness when on a stormy week end he took a 400 mile automobile trip to a football game. He "caught cold" and developed precordial pain, which, though not severe, was persistent and annoying. From this time on he was "too tired all the time." He was not seen by a physician until February 1940, when he developed an upper respiratory infection during the unusually cold weather in Florida, where he had gone "to try to get strong." He was quite ill for two weeks and then "not well enough to get around" until he came north in May. He entered a hospital in Cleveland, where the diagnosis of subacute bacterial endocarditis was made and confirmed by three blood cultures positive for *Streptococcus viridans*.

On May 21, 1940 he came under my care with all the classic signs of subacute bacterial endocarditis. He was given sulfa-

1. Galbreath, W. R., and Hull, E.: Sulfonamide Therapy of Bacterial Endocarditis: Results in 42 Cases, *Ann. Int. Med.* **18**: 201-203 (Feb.) 1943.

2. Smith, C.; Sauls, H. C., and Stone, C. F.: Subacute Bacterial Endocarditis Due to *Streptococcus Viridans*, *J. A. M. A.* **119**: 478-482 (June 6) 1942.

3. Bierman, W., and Baehr, G.: The Use of Physically Induced Pyrexia and Chemotherapy, *J. A. M. A.* **116**: 292-294 (Jan. 25) 1941.

4. Orgain, E. S., and Poston, Mary A.: Sulfonamide Compounds in Therapy of Bacterial Endocarditis, *Arch. Int. Med.* **70**: 777-784 (Nov.) 1942.

5. Dick, G. F.: Subacute Bacterial Endocarditis: Recovery Following Intravenous Sodium Sulfadiazine, *J. A. M. A.* **120**: 24-25 (Sept. 5) 1942.

6. Hull, E.; Bayley, R. H., and Holoubek, A. B.: Therapy of Bacterial Endocarditis with Massive Dosage of Sulfadiazine: Report of Four Cases, *J. A. M. A.* **122**: 928-930 (July 31) 1943.

thiazole, which at that time was obtainable only for investigational use. This preparation, furnished gratis by Merck & Co., was administered by mouth in gradually increasing doses up to 7.5 Gm. daily for one month. Fourteen days of this

in more strenuous activities than the average youngster. During her school years she had been one of the best players on a girls' baseball team and had never noted loss of cardiac reserve. She had no history of having had rheumatic fever, chorea, scarlet fever or any disease which might have been interpreted as a rheumatic manifestation.

On Feb. 6, 1942 she reported to the plant dispensary because of two furuncles on the inner side of the right forearm and a moderately diffuse swelling of the right palm, most prominent at the base of the second finger. She was given x-ray treatment of 100 roentgens over the infected areas.

On February 7, because of a moderate lymphadenitis, the palmar infection was opened and a very small amount of thick creamy pus was obtained from just under the skin. All local signs of infection promptly subsided. The temperature and pulse, which had been slightly elevated, returned to normal.

On February 16 she had a temperature of 101 F. There was tenderness over one gland in the right axilla. She had two doses of sulfathiazole but refused to take more because of nausea. Because of the persistence of fever, sulfathiazole was again administered from February 24 to March 3, a total of 18.5 Gm. being ingested during this period.

The patient was admitted to the City Hospital in Warren, Ohio, on March 4, 1942 with a provisional diagnosis of septicemia. Her temperature on the evening of admission was 101.8 F. and the pulse rate 114. On the next day the white

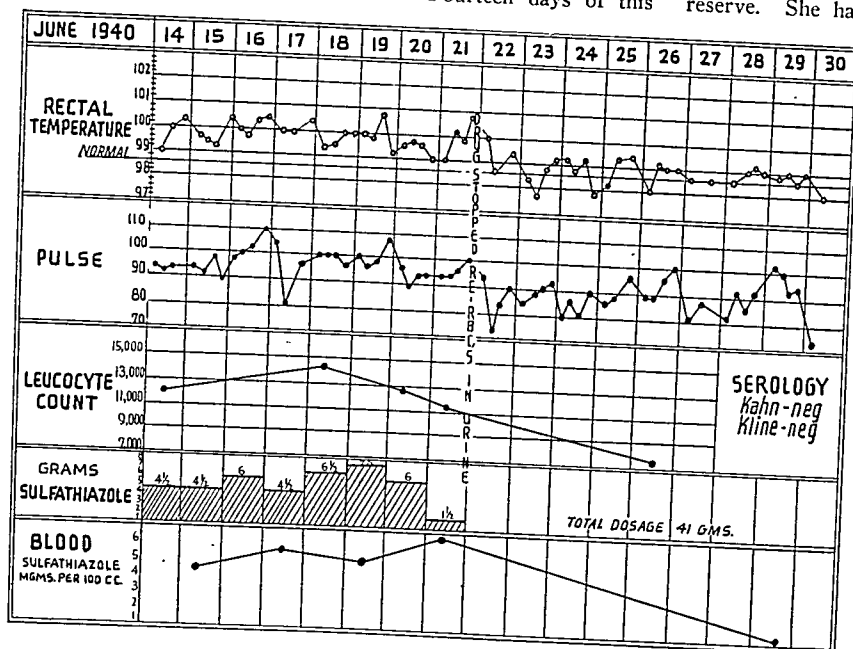


Fig. 1.—Pertinent data in case 3.

month were spent in the hospital. The drug was discontinued on June 21, 1940 for a period because of hematuria. A total of 41 Gm. had been ingested up to that time. The details of the pulse, temperature, white blood count, sulfathiazole blood level and daily amount of sulfathiazole given during his hospital stay are shown in figure 1. In addition to leukocytosis, elevated temperature and rapid pulse the patient had a tender spleen, splinter hemorrhages under the nails and evidences of emboli on the trunk and extremities. The aortic diastolic murmur recorded first in 1934 was of the same quality as noted at that time. Precordial pain was a troublesome symptom. No friction rub was heard, but the character and distribution of the pain suggested an acute pericarditis.

The patient was in bed all of May and June 1940. He returned to work Aug. 15, 1940 and has been actively engaged as an executive since that time. During this past busy season he has worked overtime almost every day. On his own initiative he took a daily dose of at least 1 Gm. of sulfathiazole for one year following his illness. He was readmitted to the hospital in 1941 for cardiovascular examination. His heart had changed but little in size since the original examination in 1934. The aortic diastolic murmur was of the same quality, but a mitral systolic murmur was heard at the apex of the heart. This was not present during his illness of 1940. It is, I believe, clear evidence of a mitral valvulitis which developed during his septicemia.

CASE 4.—I. T., a woman aged 21, a worker in a glass factory, was noted by the examining physician as having a "heart murmur" at the time she was hired in 1941. She had been told in early childhood that she had "heart trouble." In spite of warnings by family and physician, she had engaged

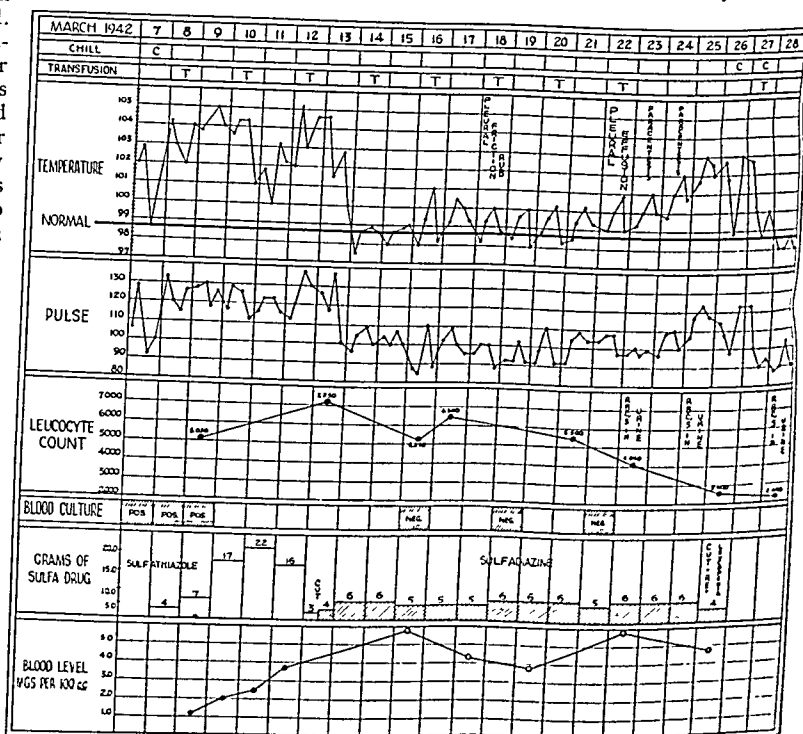


Fig. 2.—Details of treatment and response in case 4.

blood cell count was 3,900, hemoglobin 60 per cent and red blood cell count 3,840,000. The blood culture on March 6 (two days after admission) was positive for streptococcus. Positive cultures were obtained on March 6, March 7 and March 9. All of these were subcultured and found to be *Streptococcus viridans*.

7. Dr. Paul Gauchat of Warren, Ohio, gave me permission to report this case, which I saw in consultation several times in March 1942. Dr. Gauchat made the x-ray studies and carried the burden of the routine treatment.

On March 7 the patient had a chill. The temperature was 103.8 F. A record of the clinical course and treatment during the period of the most serious illness (March 7 to March 28) is shown in figure 2.

Sulfathiazole therapy was resumed on March 8, but the patient was unable to retain it because of nausea and vomiting. Large doses of sodium sulfathiazole were then given intravenously beginning March 9.

Repeated small blood transfusions seemed indicated on account of the severe anemia present on admission and because favorable clinical effects were noted following transfusions during the most critical period of the illness.

Because of severe dehydration, liberal quantities of fluid, as much as 6,000 cc. in twenty-four hours, were given orally and parenterally. This may be one reason for the lack of high concentration of sulfathiazole in the blood, for at no time did this exceed 6 mg. per hundred cubic centimeters. There was another factor influencing the blood sulfathiazole level. The patient had exceedingly small veins, so that there was considerable mechanical difficulty in giving fluids and obtaining specimens of blood for tests. The plan evolved was to take the blood specimen for laboratory purpose through the same needle through which the drug was given, but just before sodium sulfathiazole was injected. This meant that the test was taken twelve hours at least after the time when the highest concentration of the drug might have been expected in the blood.

There were two crops of petechial hemorrhages involving both feet on March 10, and multiple petechiae appeared on the hands and feet on March 12.

Because of persistent and repeated emesis, sulfathiazole was discontinued on March 13, and the patient was given sulfadiazine by mouth.

On March 18 the patient developed a pleural friction rub at the base of the right lung. This radiated to the right shoulder. There was clinical and x-ray evidence of considerable effusion in the right pleural cavity with a fluid level at the seventh rib. On March 23, 50 cc. of straw colored fluid for diagnostic purposes was removed from the right pleural cavity.

There was a palpable inguinal gland noted on March 26, and phlebitis of the veins of the left calf appeared the next day. Both of these complications subsided promptly and completely.

General clinical improvement was evident on March 26. At this time a disturbing leukopenia developed, and sulfadiazine was discontinued. The temperature became normal on March 28, and from then on recovery was uneventful.

During the period of her highest temperature, most rapid pulse rate and greatest toxemia it was my impression that the murmur at the base of the heart and at the apex changed in quality, the typical murmur of patent ductus arteriosus being harsher and more easily heard than on first examination and the systolic murmur at the apex much louder and more prolonged.

The patient left the hospital on May 16, 1942, two months and twelve days after admission. She felt well and was strong enough to walk about. There were no clinical signs other than the persistence of the continuous machinery-like murmur of patent ductus arteriosus at the base, and the soft systolic apical murmur. The electrocardiogram showed no significant departure from normal. The blood pressure was 120 systolic and 80 diastolic, the pulse rate 78 and the cardiac rhythm normal.

One year ago the patient was able to return to work (Aug. 3, 1942). To date there has been only one interruption of her normal life and that was due to a sharp attack of pyelitis on Sept. 25, 1942, which caused chills and high fever for three days and kept her from work for one week. Her chief worry at the present time is her excessive gain in weight.

COMMENT

No explanation can be given at this time for the beneficial effects of sulfonamides in the recovered patients, when 12 other cases treated during the same period have failed to be influenced in the least by similar or more intensive treatment.

One very sound reason for not being too optimistic about the cure of subacute bacterial endocarditis with sulfonamide compounds or any other substance is autopsy experience. When hearts such as the one



Fig. 3.—Heart of patient dying of subacute bacterial endocarditis. Note large left atrial mural thrombus. Destruction of mitral valve by vegetation.

shown in figure 3 are studied, the futility of treatment in similar cases must be acknowledged. Large adherent mural thrombi and multiple valve vegetation, such as those shown here, constitute depots of continuous infection which no known treatment can conceivably conquer.

In the authentic cases of recovery reported probably there was little structural damage and the infection was due to a type of streptococcus which had low resistance to the sulfonamide drugs. Our inability to recognize in advance the incurable cases makes it obligatory to treat vigorously all patients having subacute bacterial endocarditis with one of the sulfonamide drugs. Though few, these favorable results enable us to offer some hope to those who heretofore had no chance for recovery.

603 Home Savings & Loan Building.

First Accurate Medical Historian.—Thucydides (471-400 B. C.) is the first accurate medical historian. His description of the plague at Athens is, he tells us, that of an eye witness. As you study it, ask yourself the question "How would I describe an epidemic that was new and strange and struck my own city? What facts would I record and in what order?" Then notice how completely Thucydides covers the ground. In spite of the careful description of the signs and symptoms, however, it is not possible to identify positively Thucydides' plague. W. H. S. Jones thought it was malaria. More likely it was bubonic plague. The ancient and medieval world was the stage for many destructive epidemics. Both bubonic plague and influenza cause intense cyanosis, so either could have been "the black death." After Thucydides, the great plagues were (1) that following the eruption of Vesuvius, A. D. 79, which destroyed Pompeii; (2) the plague of Orosius, A. D. 125, preceded by an invasion of grasshoppers which spread over Italy and northern Africa, Carthage and Utica; (3) the plague of Antoninus, A. D. 164-180, all over the Roman Empire; (4) the pestilence of Cyprian, A. D. 251-266, probably smallpox; (5) the black death appeared in Europe about 1348, and repeated its visitations too often to mention.—Clendening, Logan: *Source Book of Medical History*, New York, Paul B. Hoeber, Inc., 1942.

A PANORAMIC VIEW OF THYRO-
TOXICOSISREGINALD FITZ, M.D.
BOSTON

(Concluded from page 947)

POST-THERAPEUTIC HYPOTHYROIDISM

Table 4 summarizes results which developed in 5 cases in which treatment directed to the thyroid gland appeared to result in the fairly prompt development of perceptible hypothyroidism. As a rule, postoperative hypothyroidism became manifest within a comparatively short time and thyroid was helpful in therapy. But none of the patients claimed to feel as well after developing hypothyroidism as when they were normal, so that, on the whole, the development of hypothyroidism as a complication of thyrotoxicosis was by no means a fortunate occurrence.

This impression is of some interest. Such surgeons as Poate and Wyndham,¹⁹ Dobson, Seely and Rose,²⁰ Berlin and Gargill²¹ and Albright and Clute,²² who have reported recently on the end results in thyroid

TABLE 4.—Development of Hypothyroidism in Patients Treated for Hyperthyroidism

Case No.	Treatment of Hyperthyroidism	Date of Present Note	Comment
1	Irradiation	4 years later	Basal metabolic rate —10 two years after; now fairly comfortable on thyroid
18	Subtotal thyroidectomy	15 years later	Feels cold, tires easily and has poor memory; fairly comfortable with thyroid; basal metabolic rate —18
26	Subtotal thyroidectomy (thyrocardiac)	6 years later	Hypothyroidism recognized six years after operation; fairly comfortable with thyroid; weight now 73.5 Kg.
27	Subtotal thyroidectomy	12 years later	Hypothyroidism recognized a year after operation; manages to be fairly comfortable with judicious use of thyroid
30	Subtotal thyroidectomy	7 years later	Hypothyroidism recognized a year after operation; takes thyroid regularly and feels fairly well but always less than normally energetic and active

surgery, have encountered postoperative hypothyroidism in a certain proportion of their cases and seem to make but little of it. Indeed a truly radical surgeon like Scott²³ appears to advocate so total a subtotal thyroidectomy in his most toxic cases as seemingly to aim for postoperative hypothyroidism.

Even those patients reported in table 3 who apparently obtained excellent results from therapy are not all entirely happy, since the ones who have gained so much weight as to become obese are not normal individuals; they admit that they are never perfectly well, are less efficient than they were before they became ill and claim to find it unduly hard to lose weight by diet restriction. Those who are hypothyroid are even more conscious of their liabilities; unenergetic, sluggish,

perhaps having found it difficult to bear normal children, and in general almost as much handicapped by being forced to rely on thyroid as is the diabetic patient who has to rely on insulin.

The duration and true significance of hypothyroidism developing as the result of treatment in thyrotoxicosis is difficult to appraise because many bizarre happenings may occur in connection with it. For example, Wilson and Mayo²⁴ saw 2 cases of clinical postoperative myxedema that later became hyperthyroid. Haines's²⁵ and Zondek's²⁶ cases are very similar. Not long ago, however, I saw a patient who gave me much food for thought:

B. M. developed the clinical picture of thyrotoxicosis when she was 28 years old. She then had a subtotal thyroidectomy; her basal metabolic rate was +69 and, according to the pathologic report of Dr. Shields Warren at the time, the gland showed primary hyperplasia with a moderate degree of strumitis.

She felt very well for several years after the operation except that she developed gallstones, which were treated successfully. I first saw her twelve years after her thyroidectomy, through the courtesy of Dr. Howard M. Clute. She had gained a great deal of weight and now looked like a person with hypothyroidism. Her basal metabolic rate had fallen to —18, and the blood cholesterol was 230 mg. per hundred cubic centimeters. She was advised to take thyroid and to diet carefully in order to lose weight.

For the ensuing four years she felt well, never bothering, however, to take thyroid regularly. Then she began to notice that she was becoming hoarse and was losing all her energy. Finally she returned to me for examination, nineteen years after operation. She had a basal metabolic rate of —37 and gave every appearance of myxedema.

I described her predicament to Dr. Warren and asked him to review her thyroid sections. He says that, in light of present knowledge, he believes it would have been possible to prophesy from the way her thyroid gland looked when he studied a section from it nineteen years ago that she was likely to develop myxedema if she lived long enough. For now he suspects that she had from the beginning a pathologic condition more like the early stages of that peculiar form of thyroid disease called struma lymphomatosa than ordinary toxic diffuse goiter.

In the literature have been reported other hints such as this which suggest that the experienced pathologist of today, if he had the chance, could spot for his surgical colleagues at the operating table those patients particularly liable to develop hypothyroidism after partial thyroid ablation. Plummer and Boothby,²⁷ for instance, before the days of iodine felt reasonably certain that the incidence of postoperative myxedema in thyrotoxicosis was more or less proportional to the degree of lymphocytic infiltration and fibrosis which happened to be present in the thyroid gland at the time of operation. It is not impossible, therefore, that preoperative biopsy with careful study of the thyroid gland before any more radical operation might be of material help in guiding treatment. Certainly the prevention of posttherapeutic hypothyroidism would be a distinct advance in the treatment of thyrotoxicosis.

19. Poate, H. R. G., and Wyndham, N. R.: The End Results of the Surgical Treatment of Thyrotoxicosis, *M. J. Australia* 1: 505-509 (April 13) 1940.

20. Dobson, L.; Seely, H., and Rose, H., Jr.: The End Results of Thyroidectomy, *Ann. Surg.* 115: 199-205 (Feb.) 1942.

21. Berlin, D. D., and Gargill, S. L.: Factors Influencing Persistent and Recurrent Hyperthyroidism, *New England J. Med.* 222: 254-259 (Feb. 15) 1940.

22. Albright, H. L., and Clute, H. M.: Six Years' Experience of the Thyroid Service at the Massachusetts Memorial Hospitals, *New England J. Med.* 227: 363-370 (Sept. 3) 1942.

23. Scott, A. C.: The Surgery of Recurrent Exophthalmic Goiter, *Texas State J. Med.* 32: 649-652 (Feb.) 1937.

24. Wilson, W. D., and Mayo, C. W.: Postoperative Myxedema, *Surgery* 7: 117-121 (Jan.) 1940.

25. Haines, S. F.: Exophthalmic Goiter Developing in a Case of Postoperative Myxedema, *Proc. Staff Meet., Mayo Clin.* 5: 49-49 (Feb. 19) 1930.

26. Zondek, H.: Graves' Disease—Myxedema—Graves' Disease, *Lancet* 1: 75 (Jan. 16) 1943.

27. Boothby, W. M., and Plummer, W. A.: Diseases of the Thyroid Gland, in Christian, H. A., and Mackenzie, J.: *Oxford Medicine*, New York, Oxford University Press, 1921, vol. 3, pt. 3, p. 904.

RECURRENT TOXIC GOITER

Table 5 summarizes the results in 3 cases with true recurrences necessitating operative treatment. It is interesting that in 1 instance no appreciable recurrence occurred until seven years after thyrotoxicosis was first recognized and treated by surgical means. This is not unusual, and one can easily assemble curious stories along this line. A certain woman now 57 years old was operated on for hyperthyroidism in 1913, thirty-one years ago. She did well for eleven years, until 1924, when she had a recurrence with a second operation. Eight months later she had a third recurrence, which also was treated by surgery. The disease then was quiescent for eight years. But in 1932 a fourth recurrence developed, and since then her thyroid gland appears to have behaved itself.



Fig 2.—End result on the thyroid gland of thyrotoxicosis treated by surgery. Section of the same thyroid gland that was shown in figure 1 obtained at necropsy ten years later. The remnant weighed 11 Gm. The acini are dilated. The epithelium is low cuboidal. There is considerable increase in connective tissue. The gland appears atrophic rather than hyperplastic. Reduced from a photomicrograph with a magnification of 50 diameters (Courtesy of Drs. Shields Warren and S. B. Wolbach.)

The frequency with which recurrences develop after any form of treatment varies but is always a sore point. Coller and Potter²⁸ have described the situation clearly; in light of present knowledge thyrotoxicosis, they admit, is due to an unknown exciting cause. The surgical approach is to interrupt a vicious circle through an attack on hyperactivity of the thyroid gland, this being one known factor in the circle. No measured amount of thyroid tissue always to be exactly proper can possibly be left behind after subtotal thyroidectomy; if too much is taken out, hypothyroidism will probably

develop, and if too little, recurrence of the clinical picture is likely. To an internist the line between the production of artificial myxedema and failure to check hyperthyroidism is a fine one; the wonder is that satisfactory results from surgery are obtained as frequently as they are.

Rienhoff¹⁴ made biopsies of thyroid glands from patients operated on for thyrotoxicosis at intervals after operation. His studies suggested that subtotal thyroidectomy did not diminish histologic evidence of thyroid hyperplasia up to several months after operation. Branch²⁹ has had opportunity to examine the thyroid remnant in 1 case eight weeks after subtotal thyroidectomy for thyrotoxicosis. His findings confirm Rienhoff's. He reports that the appearance of the two sections were much alike: in the one was evidence of a hyperplastic overactive gland which came from a patient known to have an elevated metabolic rate; in the other was evidence of a hyperplastic overactive gland in a thyroid remnant weighing only a few grams, also known to come from the same patient, now with normal metabolic rate. Such evidence suggests, therefore, that the thyroid remnant after operation continues

TABLE 5.—Cases with Recurrent Thyrotoxicosis

Case No.	Treatment of Hyperthyroidism	Date of Present Note	Comment
2	Subtotal thyroidectomy	8 years later	Developed recurrence three years after first operation; had second operation and developed hypothyroidism; death eight years after first operation
19	Subtotal thyroidectomy	24 years later	Developed recurrence two years after first operation and a third recurrence three years after the second; both recurrences were treated by surgery; since last operation has enjoyed good health
31	Subtotal thyroidectomy	19 years later	Developed recurrence seven years after first operation and a third recurrence two years after the second; both recurrences were treated by surgery; since last operation believes that she has had waves of minor recurrences controlled by iodine and rest; has gained 30 Kg. since first operation

to be stimulated by whatever the fundamental cause of the disease may be and does its best to produce thyroxine as fast as it can until possibly Barker's "burning out" process becomes manifest or until one of Plummer's cycles of spontaneous remission occurs.

Rienhoff's findings coupled with other of his studies concerning the effect of thyroid on the microscopic appearance of the thyroid gland led him to resurrect an old idea: the use of thyroid in the treatment of hyperthyroidism. Fifty years ago this was a fairly popular form of therapy. At the annual meeting of the Massachusetts Medical Society in 1895, J. J. Putnam³⁰ spoke about modern views on the nature of toxic diffuse goiter. In discussing treatment he announced it was known that occasionally the use of thyroid led to an improvement in the condition, and this was indeed a blow to those who thought that the disease was related to excessive thyroid secretion.

Owen³¹ was one of the early proponents of thyroid feeding in the treatment of thyrotoxicosis. In 1893 he reported a most striking case: A man with hyperthyroidism was advised to eat each day one fourth lobe of freshly minced sheep's thyroid flavored with a little salt and vinegar. Once, by mistake, for two days

²⁹ Branch, C. F.: Personal communication to the author.

³⁰ Putnam, J. J.: Modern Views on the Nature and Treatment of Exophthalmic Goitre, *Boston M. & S. J.* 133:131-137 (Aug. 8) 1895.

³¹ Owen, D.: Thyroid Feeding in Exophthalmic Goitre, *Brit. M. J.* 2:1211 (Dec. 2) 1893.

²⁸ Coller, T. A., and Potter, E. B.: The End Results of Thyroidectomy, *Ann. Surg.* 94:563-581 (Oct.) 1931.

the man's wife gave him one-fourth pound of this mixture to eat and this promptly induced what was described as a violent dyspepsia. A few days later the proper dosage was resumed and the patient was much gratified; for he steadily improved and finally grew well. Thus he continued with the medicine, finding that if he did not take it he would relapse, whereas so long as he used it he stayed in good trim.

A little over a year later Owen³² made an interesting confession. A friend of his had read the first report and pointed out that the thyroid gland of a sheep ordinarily weighs 80 grains (5 Gm.), so that a quarter pound of sheep's thyroid would mean twenty whole glands a day and this appeared an incredible quantity for a man to ingest. Owen, therefore, examined what his patient was eating and discovered he had been taking thymus, an excusable mistake, in Owen's opinion, since the butchers of the day were familiar with the "neck-berg" and the "heart-berg" of young sheep (the cervical and thoracic thymus) but often were ignorant of the existence of the thyroid gland.

At about the same time Mikulicz³³ in Germany and Cunningham³⁴ in America reported that in the treatment of toxic diffuse goiter the use of minced thymus

in the treatment of toxic diffuse goiter until H. S. Plummer reclaimed it, one feels that some modern investigator might do well to repeat Owen's work.

This, however, is by the way. For Rienhoff determined to use thyroid in the treatment of hyperthyroidism for an entirely different reason. He concluded

TABLE 6.—Periodic Basal Metabolic Rate Determinations in Three Patients with Thyrotoxicosis

Case No.	Date	Weight, Kg.	Basal Metabolic Rate	Comment
3	10/ 1/31	62.7	+38	Subtotal thyroidectomy
	10/16/32	75.0	- 6	
	2/11/35	72.7	-12	
	10/13/37	67.7	-21	
	12/16/38	70.3	- 7	
	11/12/40	67.7	- 9	
	10/ 7/42	69.0	-12	
	3/25/43	66.7	-10	
	1/19/44	69.0	-12	
25	9/16/37	72.3	+30	Subtotal thyroidectomy
	4/11/38	69.0	- 1	
	11/25/38	70.0	- 3	
	10/22/40	72.7	-27	
	4/30/41	....	-10
	6/21/41	73.0	+ 8	
	11/ 6/43	73.5	+ 7	
21	2/ 1/39	51.7	+46	Subtotal thyroidectomy
	4/24/39	....	+ 6
	9/ 5/41	60.0	+17	
	10/16/41	....	+10
	2/10/42	....	+17
	5/ 4/42	....	+10
	5/12/43	61.7	+ 4	
	2/10/44	60.9	- 8	



Fig. 3.—A type of hyperplastic goiter resulting in myxedema. The photograph is from a section of thyroid gland removed when the patient's metabolic rate was + 69. There is evidence of hyperplasia, but also there is considerable fibrosis and lymphocytic infiltration. Nineteen years later the patient's metabolic rate was — 37 and she had clinical myxedema. (Courtesy of Dr. Shields Warren.)

might be followed by results that were both surprising and pleasing. When one recalls how iodine first happened to be used by accident and was then discarded

that the amount of thyroid secretion in the blood stream at any time determines the activity of the thyroid parenchyma and hence that cellular activity would take place at a minimum rate when there was an abundance of circulating secretion. With this thought in mind he first began to give thyroid to patients with hyperthyroidism after operation, thereby hoping to induce atrophy in the stump of tissue remaining and thus to do away with recurrences. So far he has noticed no detrimental effects from using thyroid in this fashion, and indeed his results appear promising. He has treated a few cases without operation in the same way and with equally promising results. De Courcy³⁵ has followed this lead and also reports success. It may be that by reviving an obsolete method we are on the threshold of developing a means to lessen post-therapeutic recurrences of thyrotoxicosis. To accomplish this would be a distinct advance in treatment.

THE PERIODIC EXAMINATION OF PATIENTS WITH TOXIC GOITER

One feature of thyrotoxicosis is very clear: patients with it must be carefully followed. Their periodic examination is fully as important as is the periodic examination of the diabetic, the cardiac or the syphilitic patient. Their weight must be watched, their level of metabolism must be surveyed at intervals, and unexpected complications must be guarded against as long as they live.

Table 6 reports the results in 3 patients who have been particularly cooperative in reporting whenever they were asked to; their records show apparent minor fluctuations in thyroid activity that might have been overlooked had they not been searched for. Patients 3 and 25 at one time appeared to be on the way to develop postoperative hypothyroidism. Whether this ever would have been at all significant is uncertain, because both took thyroid for a short time. Now, as the distance

32. Owen, D.: Further Notes on the Treatment of a Case of Exophthalmic Goitre, *Brit. M. J.* 1: 361-362 (Feb. 16) 1895.
33. Mikulicz, J.: Ueber Thymusfütterung bei Kropf und Basedow'scher Krankheit, *Berl. Klin. Wchnschr.* 32: 342-346 (April 22) 1895.
34. Cunningham, R. H.: The Administration of Thymus in Exophthalmic Goitre, *M. Rec.* 47: 742-745 (June 15) 1895.

35. De Courcy, J. L.: Prevention of Recurrent Hyperthyroidism, *Ohio State M. J.* 38: 449-451 (May) 1942.

from operation lengthens, their metabolic rates appear stabilized. Patient 20 appeared to be headed in the direction of a recurrence. When her metabolic rate was found to be +17 she felt nervous and out of sorts. She took Lugol's solution until the rate fell to +10 and she felt better. The iodine was then discontinued, but a few weeks later the metabolic rate had risen to +17 and subjectively she felt as she did before. Since then she has been taking iodine intermittently and her metabolic rate appears to be falling. It is difficult to feel at all sure that such minor changes mean anything; they are reported, however, to illustrate part of the interest that the reexamination of patients with thyrotoxicosis affords any one with clinical curiosity.

LESS COMMON SEQUELAE OF TOXIC GOITER

The remaining 3 patients each presented certain atypical features of thyrotoxicosis which fit in no grouping and must be considered individually:

Patient 6 was first seen when she was 46 years old. A few years later she developed diabetes and, on top of this, thyrotoxicosis when she was 59. Subtotal thyroidectomy was performed and now at 72 she has a basal metabolic rate of +11, so that from the point of view of thyrotoxicosis she is well.

She is unwilling to pay any serious attention to her diabetes, which still exists. It is impossible to judge what effect, if any, the thyroid operation has played in relation to her other disease.

Patient 7 was first examined when she was 44 years old, a thin woman, hard working and seemingly an even tempered, well balanced individual. She was examined at yearly intervals for the following eight years. During the ninth she developed manifestations of thyrotoxicosis, which were treated by sub-

upshot of opinion by such psychiatrists as Katzenelbogen and Luton,³⁶ Dunlap and Moersch³⁷ and Rulison, White and Stalker³⁸ is that no particular type of psychosis is specifically associated with thyrotoxicosis. In certain instances hyperthyroidism may appear to play a part as an aggravating or precipitating factor



Fig. 5.—Section of the same gland as shown in figure 4 obtained at necropsy eight weeks later. The remnant weighed only a few grams. It is diffusely hyperplastic. There is epithelial hyperplasia with the formation of papillary projections, and moderate lymphocytic infiltration with formation of secondary follicles. On the whole, the appearance of the two sections is much alike. (Courtesy of Dr. C. F. Branch.)



Fig. 4.—Immediate effect on the thyroid gland of thyrotoxicosis treated by surgery. Section of gland removed at operation reduced from a photomicrograph with a magnification of 70. The gland is diffusely hyperplastic. There is epithelial hyperplasia with the formation of papillary projections and slight lymphocytic infiltration.

total thyroidectomy. She recovered satisfactorily and appeared to be well for a year. Then suddenly she developed a psychosis of the manic-depressive type and for the last two years has required institutional care.

A great deal has been written concerning this sort of occurrence, which unfortunately is not rare. The

in mental disease but, on the other hand, it may not. One is left with the impression that whatever relationship there may be between thyrotoxicosis and psychiatry is still undetermined.

Patient 15 developed thyrotoxicosis at about the time of the menopause seven years ago, and ever since, despite subtotal thyroidectomy, has had a persistently elevated basal metabolic rate with a tendency to progressive exophthalmos.

Cases of this sort have perplexed many people. Lahey,³⁹ who has continued firmly to advocate the surgical treatment of thyrotoxicosis, believes that the postoperative continuance of hyperthyroidism indicates a left behind segment of hyperfunctioning gland. In such cases, he claims, the administration of iodine is unlikely to be of use, while the removal of a large portion of the segment is often needed to bring about a satisfactory result. Means, Hertz and Williams⁴⁰ have described what they term Graves' disease with dissociation of thyrotoxicosis and ophthalmopathy. They believe that there are cases in which eye manifestations are independent of the thyroid and that in such instances operation on the thyroid may be not indicated while full iodination is. No doubt between these two extremes are borderline cases in which expert judgment in choice of treatment is imperative and decision is

36. Katzenelbogen, S., and Luton, F. H.: Hyperthyroidism and Psychobiological Reactions, *Am. J. Psychiat.* 91: 969-981 (March) 1935.

37. Dunlap, H. F., and Moersch, F. P.: Psychic Manifestations Associated with Hyperthyroidism, *Am. J. Psychiat.* 91: 1215-1238 (May) 1935.

38. Rulison, E. T., Jr.; White, J. D., and Stalker, L. K.: Mental Disorders Associated with Hyperthyroidism, *Am. J. Surg.* 54: 499-501 (Nov.) 1941.

39. Lahey, F. H.: Persistent and Recurrent Hyperthyroidism, *Ann. Surg.* 83: 199-205 (Feb.) 1926.

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difficult. Cattell and Morgan⁴¹ have advised a sensible middle course in doubtful cases. They assume that persistence of hyperthyroidism after operation is due to combinations of whatever factors outside the thyroid were responsible for the original difficulty, and they advise further surgery only for those who do not improve under medical treatment, seeming reluctant to advise reoperation until it becomes clearly indicated.

CHANGING VIEWS ON THE TREATMENT OF TOXIC GOITER

The literature on toxic goiter has a cyclic character which is most interesting. When thyrotoxicosis first became recognized, the thyroid gland was considered chiefly at fault and efforts were made to control its hyperactivity mechanically. As experience grew, an increasing number of investigators became convinced that thyroid hyperactivity was but a link in the disease, and, as knowledge of endocrinology advanced, the part that the thyrotropic hormone of the anterior pituitary played in producing the clinical picture of thyrotoxicosis came to the front. All this has been reflected in ideas on treatment. The experience of the Massachusetts General Hospital⁴² shows that between 1919 and 1921 half the cases were treated by nonsurgical methods. Between 1932 and 1935 surgery was employed in almost every case. In 1942 half surgical and half nonsurgical procedures were employed, the nonsurgical cases including the special ophthalmopathic type in which Means, Hertz and Williams believe surgery is contraindicated and a variety of others treated successfully by iodine alone or by radioactive iodine and by x-rays. The recent discovery of thiouracil⁴³ as a depressant of thyroid function will undoubtedly stimulate further efforts at the treatment of thyrotoxicosis by other than surgical means.

Many years ago W. J. Mayo⁴⁴ spoke about the crudity of thyroidectomy and expressed the belief that when toxic goiter was better understood a less destructive method of treatment would come about. Little by little we are approaching its development.

SUMMARY AND CONCLUSIONS

Through an attempt to describe thyrotoxicosis as an actual experience in the life cycle of a group of patients observed over a long period of time, certain impressions have resulted which are clearcut and definite. They are by no means novel but serve to reemphasize the peculiar clinical course of a strange pathologic entity of unknown origin.

Hyperthyroidism, whatever its cause, is likely to be a serious affliction. It may affect any one of any age and either sex. It is found more frequently in women than in men. An individual who is tall or short, fat or thin, old or young may develop it, so that to speak of "Graves' constitution" is not altogether reasonable.

The early clinical recognition of hyperthyroidism is difficult. The patient developing it is at first stimulated and may feel unusually well. Only after thyrotoxicosis exists for some time so as to wear a patient down or unless it is notably acute does it make any one feel ill enough to seek medical advice, and by this time usually the diagnosis is easy.

The operative treatment of toxic goiter in expert hands is surprisingly successful. It is a time saving procedure and without great risk. On the whole, it is a more satisfactory form of treatment than any other so far developed. There are two complications following operation, however, which are so frequently encountered as to be a definite hazard: the development of postoperative hypothyroidism or of subsequent recurrences of hyperthyroidism. Both are serious. It is possible that modern methods of treatment and closer cooperation between the surgeon and the pathologist may help to avoid both of these complications in future.

The ultimate result of the surgical treatment of thyrotoxicosis is uncertain. In two completed cases reported here the thyroid gland did not show evidence of regeneration but was atrophic. More information on the entire course of toxic goiter is needed.

The patient with toxic goiter must be reexamined periodically as long as he lives. This is important because the disease naturally has a wavelike character and is chronic. Through careful periodic reexamination complications of toxic goiter may be recognized early, treated promptly, and the life of patients with it may be made more secure. Operative treatment interrupts a vicious circle through an attack on hyperactivity of the thyroid gland. It does not reach the fundamental cause of the disorder and thus is not a curative procedure.

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EFFECT OF DESOXYCORTICOSTERONE ACETATE ON THE BLOOD PRES- SURE OF MAN

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In 1939 attention was called to 2 patients whose arterial blood pressure exceeded normal limits in the course of treatment with desoxycorticosterone esters for Addison's disease.¹ Since that time these observations have been confirmed and extended.² Studies in animals have also revealed an elevation of blood pressure following the administration of desoxycorti-

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costerone esters.³ Recently Selye and his co-workers have reported the appearance of vascular lesions in chicks, rats, dogs and other animals following the sustained use of this drug.⁴

In these reports concerning the effect of desoxycorticosterone, it has not been apparent whether the observed increase in blood pressure is due to salt and water retention or to some other unexplained action of the hormone. In order to clarify this problem, it seemed desirable to study the effects of desoxycorticosterone acetate⁵ and of sodium chloride on the blood pressure, blood volume and sodium concentration of the blood in comparable groups of patients with Addison's disease. In addition, it seemed of importance to determine the action of desoxycorticosterone acetate and of sodium chloride in a group of patients without adrenal disease and without an underlying disturbance of electrolyte and water metabolism.

I. EFFECT OF SODIUM CHLORIDE AND DESOXYCORTICOSTERONE ACETATE IN ADDISON'S DISEASE

Clinical Material and Methods.—Observations are reported on a series of 15 patients treated with sodium chloride alone and a group of 24 cases treated with desoxycorticosterone acetate with or without additional salt. Included in the second series are 7 patients who, following treatment with sodium chloride alone, were later treated with desoxycorticosterone acetate and are therefore listed in both groups.

In all cases the diagnosis of hypoadrenalism was established in the wards of the Presbyterian Hospital clinically as well as chemically by a decrease in the sodium concentration of the blood serum during an addisonian crisis or as a result of the withdrawal of salt from the diet. With rare exceptions, all patients were subsequently examined in the outpatient department at intervals of three months or less. The blood pressure was recorded under similar conditions on each visit to the outpatient department by one of a small group of observers. When abnormal values were found, repeated readings were made for confirmation.

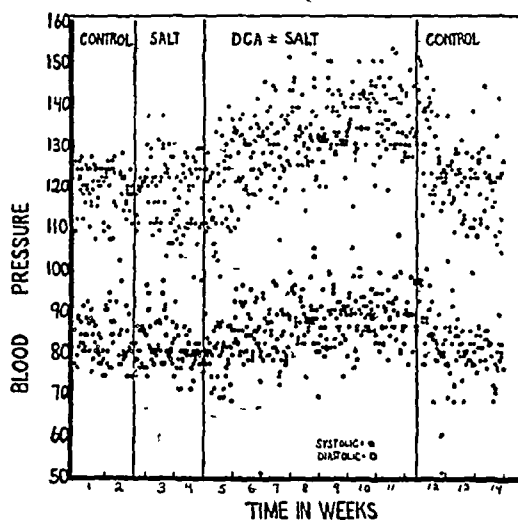
Sodium chloride was given in almost all instances in the form of enteric coated tablets, but a few patients, particularly in the earlier years of treatment, took their salt either in capsule form or in drinking water. The parenteral administration of salt was resorted to in the occasional intercurrent crises. The desoxycorticosterone acetate was given subcutaneously in daily injections except to 2 patients, to whom it was administered every other day. Pellets were later implanted subcutaneously in 6 patients, 2 of whom were subsequently returned to the injection form of therapy.

Plasma volumes were determined after twenty minutes of recumbence with the blue dye T. 1824 and calculated from the optical density of a serum sample drawn ten minutes after injection of the dye. The

optical density was measured with the photoelectric colorimeter, the results being compared with the estimated normal values based on square meters of body surface area.⁶ Total blood volumes were calculated from the plasma volume directly by the hematocrit. Sodium was determined in the blood serum directly⁷ or, at times, in the absence of nitrogen retention, indirectly by the summation of the carbon dioxide content expressed as milliequivalents per liter and the chlorine concentration of the serum expressed as milliequivalents per liter plus 10.⁸ Cold pressor tests were carried out according to the method described by Hines and Brown.⁹

RESULTS

Treatment with Salt Alone.—In this group of 15 patients (table 1) there were 11 men and 4 women, with a mean age of 37 years (standard deviation 6.7). The average period of treatment with salt alone was more than three years in this series. All the members of this group were maintained in electrolyte balance on daily oral doses of sodium chloride in excess of that in the diet. No significant hypertension developed



Effect of desoxycorticosterone acetate on the blood pressure of 3 patients without adrenal disease.

in any of these patients. At no time did the recorded diastolic pressure exceed 90 mm. of mercury. In only 2 patients were systolic values observed above 140 mm. of mercury and then on only one and two readings respectively over a period in which many lower values were recorded. The plasma and total blood volumes were within accepted normal limits in the 3 patients of this series on whom measurements were made. These determinations were made after many months of sustained salt therapy and when serum sodium concentrations were normal. The cold pressor test was carried out in 6 of this salt treated group at the same time. The results were negative in 3 patients, equivocal in 1 and positive in 2.

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Treatment with Desoxycorticosterone Acetate With or Without Addition of Salt.—In the group of 24 patients with Addison's disease receiving desoxycorticosterone acetate (table 2) there were 17 males and 7 females, having a mean age of 35 years (standard deviation 10.8). All but 5 were followed for more than one year, the average period of observation being two years. In this series repeated blood pressure

Excluding these 4, there remained 8 patients who gave no history and presented no signs or symptoms to suggest previous or coincidental cardiac, vascular or renal disease. The average age of these patients, in whom repeated blood pressure levels exceeding 140/90 developed in the course of treatment with desoxycorticosterone acetate, was 38 years (standard deviation 6.8). Six of the group were males. The administra-

TABLE 1—Patients with Addison's Disease Treated with Salt Alone

Name	Age	Sex	Duration of Treatment	Average Daily Dose of Added Salt, Gm.	Maximum Blood Pressure		Plasma Volume, Cc	Estimated Plasma Volume, 1,000 Cc per Sq M Surface Area	Hemato-crit, per Cent Cells	Comment
					Sys tolic	Diastolic				
1 Fi	33	♂	1 yr. 1 mo.	12	118	76	..	..	..	Subsequently treated with desoxycorticosterone
2 Del	40	♂	1 yr. 3 mos	15	110	85	..	..	..	Subsequently treated with desoxycorticosterone
3 Pol	20	♂	1 yr. 5 mos	10	110	70	2,660	2,920	45	Subsequently treated with desoxycorticosterone
4 Bu	31	♂	1 yr. 10 mos.	12	120	82	..	..	..	Subsequently treated with desoxycorticosterone
5 Ol	34	♂	2 yrs.	18	130	86	..	..	..
6 So	45	♂	2 yrs. 5 mos.	10	122	80	..	..	..
7 Fl	35	♂	2 yrs. 8 mos	12	106	80	..	..	..
8 Wen	41	♂	2 yrs. 8 mos.	7	138	90	..	..	..	Only one blood pressure recorded above 130/80
9 Ga	33	♂	2 yrs 10 mos.	12	124	80	2,840	2,440	47	Subsequently treated with desoxycorticosterone
10 Be	45	♂	3 yrs. 1 mo	15	140	85	..	..	..	Only one blood pressure recorded above 122/80
11 Ch	34	♂	3 yrs 6 mos	8	100	74	..	..	..	Subsequently treated with desoxycorticosterone
12 Wil	49	♂	3 yrs 7 mos.	10	125	80	..	..	..
13 Wes	33	♂	4 yrs 10 mos	6	120	80	..	..	..	Subsequently treated with desoxycorticosterone
14 Pon	42	♂	7 yrs 3 mos	12	145	90	2,490	2,720	44	In over 60 determinations, systolic > 130 twice systolic > 140 mm. once
15. Fr	38	♀	9 yrs 7 mos.	10	142	90	..	..	..	In over 50 determinations, systolic > 130 three times, systolic > 140 mm. twice

TABLE 2.—Patients with Addison's Disease Treated with Desoxycorticosterone Acetate, With or Without Added Salt

Name	Age	Sex	Duration of DCA Treatment	Average Daily Dose		Maximum Blood Pressure		Plasma Volume, Cc	Estimated Plasma Volume, 1,000 Cc per Sq M Surface Area	Hemato-crit, per Cent Cells	Comment
				DCA, Mg	Salt, Gm	Sys tolic	Diastolic				
1 Fi	34	♂	2 mos	6	0	150	150	..	..	..	Repeated blood pressure over 140/90
2 Ch	38	♂	5 mos	8	2	115	80	..	..	..
3 Gr	24	♂	8 mos	4	4	120	80	..	..	..	Repeated blood pressure over 140/90, electrocardiogram showed left preponderance before DCA treatment
4 Wh	45	♂	8 mos	3	5	175	110	..	..	..	Repeated blood pressure over 140/90
5 Ru	25	♂	8 mos.	4	0	155	95	2,740	2,960	45	Repeated blood pressure over 140/90
6. Ma	41	♂	10 mos	3	1	160	98	2,640	2,660	48	Repeated blood pressure over 140/90
7. Se	22	♂	1 yr. 2 mos	3	0	140	80	..	..	..	Repeated blood pressure over 140/90, precordial pain, left preponderance by electrocardiogram before DCA treatment
8 To	46	♂	1 yr 2 mos	5	0	154	104	..	..	..	Repeated blood pressure over 140/90
9 Mc	35	♂	1 yr. 7 mos	6	2	150	104	..	..	..	Repeated blood pressure over 140/90
10. Wes	37	♂	1 yr. 7 mos	3	2	150	95	..	..	..	Repeated blood pressure over 140/90
11 Ku	26	♀	1 yr. 7 mos	3	0	140	95	..	..	..	Diastolic > 90 mm on last visit only
12 Za	54	♂	1 yr. 8 mos	5	0	130	80	..	..	..
13 Wo	48	♂	1 yr. 8 mos.	2	3	180	102	3,095	2,800	42	Repeated blood pressure over 140/90
14. Br	46	♂	1 yr. 9 mos	4	2	160	100	2,740	2,420	46	Repeated blood pressure over 140/90
15 Ha	22	♂	1 yr. 9 mos.	5	0	160	96	..	..	..	Repeated blood pressure over 140/90, known to have labile systolic blood pressure before Addison's disease
16 Di	27	♂	2 yrs 5 mos	2	5	115	80	..	..	..
17. Wis	11	♂	2 yrs. 5 mos	3	4	103	83	..	..	..
18. Bu	33	♂	2 yrs. 11 mos.	4	0	122	80	..	..	..
19. Jo	41	♂	3 yrs 1 mo	3	0	130	85	..	..	..
20. Del	42	♂	3 yrs. 3 mos	5	4	140	90	..	..	..
21 Pol	21	♂	3 yrs. 4 mos.	4	3	125	90	..	..	..
22 Ma	27	♂	3 yrs 8 mos	6	0	112	60	..	..	..
23. Ga	56	♂	3 yrs. 9 mos.	2	0	153	106	..	..	..	Repeated blood pressure over 140/90 during first year of DCA therapy only
24. Deu	50	♂	3 yrs. 9 mos.	4	0	180	110	..	..	..	Repeated blood pressure over 140/90; hypertension present before Addison's disease

readings in excess of 140/90 were observed in 12 patients, an additional patient (Ku) having a level of 140/95 at the time of her last visit only. Of these 12 patients, 1 (Deu) had definite antecedent hypertension, another (To) had a history suggestive of angina pectoris before therapy, a third (Wh) came to autopsy, at which time pronounced renal arteriolar sclerosis was found as well as Addison's disease, and a fourth (Ha) was known to have had a labile systolic pressure reaching a maximum of 152 mm. of mercury while a high school student and before the development of hypoadrenalism.

tion of extra sodium chloride was not a constant factor, as 3 received no more salt than that contained in their regular diet. Hypertension developed at different lengths of time after the start of desoxycorticosterone acetate therapy, but the time of its appearance could be measured in weeks or months rather than in days. In 2 instances it appeared within one month, in another not until seven months, and in the remainder the time of onset fell between these intervals. Of particular interest was 1 patient (Fi) whose blood pressure at no time exceeded 118/76 for one year during which his disease was controlled by sodium chloride alone, but

who then developed hypertension within two months after starting desoxycorticosterone acetate therapy without additional salt.

In only 1 patient (Ga) was the elevated blood pressure transient. The remainder continued to show a hypertension while under treatment, except in instances in which the dose of desoxycorticosterone acetate was reduced either with or without concomitant decrease in serum sodium concentration to abnormally low levels. At no time, however, did the hypertension persist when

abnormal cardiovascular signs, in contrast to the rapid cardiac dilatation and failure which may develop when excessive doses of desoxycorticosterone acetate and salt are given in the treatment of an Addisonian crisis. In the latter patients hypertension does not appear.

Cold pressor tests were positive in 3 of 6 patients who did not develop hypertension after prolonged treatment with desoxycorticosterone acetate. In 5 of the group who exhibited abnormal increases in blood pressure, the cold pressor test was positive in 3, equivocal

TABLE 3.—Other Measurements and Laboratory Data on Three Patients with No Adrenal Disease Treated with Desoxycorticosterone Acetate

Patient	Period	Week	Weight, Lbs.	Venous Pressure, mm. H ₂ O	Vital Capacity, Cc.	Circulation Time, Sec.	Cardio- thoracic Ratio	Plasma Volume, Cc.	Serum Protein, Gm. per 100 Cc.	Hema- tocrīt, per Cent Cells	Non- protein Nitrogen, Mg. per 100 Cc.	PSP Excretion in 2 Hrs.	Urine			
													Specific Gravity	Albu- min	RBC, per High Power Field	Casts, per High Power Field
Be	1	1	98-100	50	2,800	..	0.46	2,400	7.0	42	32	50	1.009	+	1	0
		2		..	..	..	0.46	.....	..	..	..	..	1.014	0	1	0
	2	3	101-103	60	2,600	..	....	2,360	7.5	42	..	..	1.010	+	0	0
		4		..	..	..	....	.....	..	..	..	..	1.026	+	2	0
	3	5	102-103	80	2,500	..	....	.....	..	..	..	..	1.026	+	0	0
		6		80	2,600	..	....	.....	..	..	..	..	1.026	++	0	0
		7	105-107	80, 100,	2,500	20	....	.....	..	..	..	..	1.024	++++	2	0
		8		01	2,400	..	....	.....	..	..	..	..	1.024	++++	2	0
	4	9	106-109	90	2,200	..	0.49	.....	..	..	..	..	1.014	+	2	Rare
		10		80	2,100	..	0.51	2,520	7.1	41	..	55	1.024	++++	2	0
		11	104-107	..	..	..	0.51	.....	..	..	..	..	1.014	+	2	Rare
		12		80	2,600	..	0.41	2,180	..	..	..	..	1.022	+	6	0
Ch	1	1	134-137	25	3,200	25	0.41	2,620	7.5	49	39	45	1.030	+	0	0
		2		45	..	23	0.41	2,620	7.5	49	39	45	1.030	+	0	0
	2	3	135-136	35	..	..	0.40	2,710	7.2	46	..	..	1.034	+	3	0
		4		..	..	..	0.40	2,710	7.2	46	..	..	1.034	+	3	0
	3	5	136-142	75	3,600	..	....	.....	..	..	..	..	1.010	0	2	0
		6		75	2,500	..	....	.....	..	..	..	..	1.010	0	2	0
		7	139-141	75, 95, 65	2,400	25	0.43	.....	..	..	..	..	1.023	0	0	0
		8		..	..	..	0.43	.....	..	..	..	..	1.023	0	0	0
	4	9	138-141	80	2,800	..	0.46	3,530	7.0	44	..	75	1.018	0	0	0
		10		75	2,700	..	0.46	3,530	7.0	44	..	75	1.018	0	0	0
		11	136-140	85	2,900	..	0.18	.....	..	..	..	..	1.024	0	0	0
		12		..	2,800	..	0.18	.....	..	..	..	..	1.024	0	0	0
Va	1	1	163-164	118*	2,700	11	....	.....	..	..	32	57	1.026	0	3	0
		2		105	2,600	..	0.56	2,450	7.2	44	..	..	1.026	+	0	0
	2	3	162-164	105	2,600	..	0.56	2,450	7.2	44	..	..	1.026	+	0	0
		4		105	2,600	..	0.56	2,450	7.2	44	..	..	1.026	+	0	0
	3	5	163-166	85	2,100	..	....	.....	..	..	..	..	1.022	0	0	0
		6		85	2,300	..	....	.....	..	..	..	..	1.022	0	0	0
		7	160-165	100	2,500	..	....	.....	..	..	..	..	1.020	0	1	0
		8		100	2,600	..	....	.....	..	..	..	..	1.020	0	1	0
	4	9	153-164	58	2,100	..	0.60	.....	..	..	..	..	1.026	+	2	Rare
		10		105	2,000	..	0.56	2,680	7.0	49	..	53	1.026	+	2	Rare
		11	156-159	..	..	..	0.57	.....	..	..	..	..	1.027	+++	50+	0†
		12		80	2,400	..	0.52	.....	..	..	..	80	1.027	+++	50+	0†
	4	13	156-159	..	.....	..	....	3,980	..	..	..	..	1.027	+++	50+	0†
		14		..	.....	..	....	3,980	..	..	..	..	1.027	+++	50+	0†

* Deformities and immobility of elbows and shoulders made accurate measurements impossible.

† Associated with ureteral calculus.

the sodium concentration fell below 133 milliequivalents per liter. On the other hand, elevation of the sodium level above the normal of 141 milliequivalents per liter was not a factor in the development of hypertension. In addition, blood pressure levels bore no relationship to the rare appearance of minimal peripheral edema resulting from the administration of desoxycorticosterone acetate. In 4 patients who developed hypertension on desoxycorticosterone acetate, the plasma and total blood volumes were within accepted normal limits, determinations being made at a time when the blood pressure was significantly elevated and the serum sodium concentration was normal. Repeated examinations of the urine and also of the retinal vessels revealed no abnormalities. The hypertension has not, up to the present time, been accompanied by symptoms or

in 1 and negative in 1. All of the cold pressor tests were carried out at a time when the serum sodium concentration was normal.

II. EFFECT OF SALT AND DESOXYCORTICOSTERONE ON PATIENTS WITHOUT ADRENAL DISEASE

The following study was undertaken in order to determine if the effects of desoxycorticosterone acetate on the blood pressure of patients with Addison's disease could be reproduced in individuals without disease of the adrenal glands.

Clinical Material and Methods.—Observations were made on 3 young males without hypertension and without a history of cardiac, renal or adrenal disease. All were patients in the First Medical Service (Research Division) of the Goldwater Memorial Hospital, 2 (Be

and Va) with severe rheumatoid arthritis of the Marie-Stümpell type and 1 (Ch) with mild bronchial asthma. At the start of the experiment 2 showed mild albuminuria without evidence of disturbed renal function.

The study was divided into four periods: (1) a two week control period, (2) a two week period of high salt intake (10 to 20 Gm. daily in the form of enteric coated sodium chloride tablets), (3) seven weeks during which each patient received 10 mg. of desoxycorticosterone acetate daily subcutaneously plus varying amounts of salt (0 to 10 Gm. of enteric coated sodium chloride tablets) and (4) a final period of three weeks immediately following the withdrawal of desoxycorticosterone acetate and extra salt.

During the study these patients were afebrile and the extent of their daily activity about the wards did not vary. They ate the regular ward diet and were weighed at a fixed hour at least every other day. Daily records of fluid intake and output were kept. Throughout the period of observation the blood pressure was recorded twice a day. Each recording was the average of five readings, taken in almost all instances by one of two observers. It was ascertained at the start of the experiment that there was no significant difference in pressure between the two arms.

In addition to these measurements, certain other data were obtained at intervals during the study and are recorded in table 3. Heart size was reported as the cardiothoracic ratio. Plasma volume determinations were made as described but with the optical density measured by the Koenig-Martens visual spectrophotometer.¹⁰ The circulation times were measured with a 20 per cent solution of sodium dehydrocholate (3 cc. intravenously). Only 1 of the 3 (Va) had a positive cold pressor test⁹ as determined at the start of the experiment.

RESULTS

Blood pressure readings on all 3 patients during the four periods of the study are shown together in the accompanying chart. In both the control period and the period of salt administration without desoxycorticosterone acetate no significant change in blood pressure levels or body weight was noted. After about two weeks on desoxycorticosterone acetate all 3 patients showed a progressive elevation of blood pressure, 2 gaining a small amount of weight. Only 1 subject (Va) developed symptoms, complaining of severe headaches during the last few weeks on desoxycorticosterone acetate, with the appearance of a subconjunctival hemorrhage and a rise in pressure to 160/108 during the final week. In the final period following the discontinuance of desoxycorticosterone acetate and salt administration, blood pressures returned rapidly to control levels and each of the 3 patients lost a few pounds of weight.

One patient (Va) developed minimal ankle edema during the period of salt administration, and this increased during the first week of salt and desoxycorticosterone acetate therapy, so that sodium chloride tablets were discontinued. This was followed by almost complete resorption of the edema. The second patient (Be) had minimal periorbital and ankle edema during the first week on desoxycorticosterone acetate, but this disappeared completely when the dosage of salt tablets was reduced from 10 to 5 Gm. daily. At the time the

edema appeared, neither patient had gained significant weight or showed any accompanying urinary changes or evidence of cardiac decompensation as judged by symptoms, vital capacity and venous pressure measurements. The third patient (Ch) gained 6 pounds (2.7 Kg.) without apparent edema in the first week on desoxycorticosterone acetate, but was able to continue 10 Gm. of added salt a day until the final period without further gain.

No significant changes in the electrocardiogram were observed. In all 3 patients there was a small increase in the cardiothoracic ratio and some reduction in vital capacity. Two of the 3 patients showed slight increases in venous pressure, which, however, did not exceed normal limits. No consistent alteration in plasma volume resulted from desoxycorticosterone acetate therapy. Thus, 1 subject showed no significant change in plasma volume and a second had a rise of 800 cc. at the end of the desoxycorticosterone acetate period. The plasma volume in the third patient increased only 230 cc. during the period of desoxycorticosterone acetate therapy. His plasma volume subsequently rose another 400 cc. three weeks after his blood pressure had returned to the control level following the discontinuation of desoxycorticosterone acetate.

The unexplained albuminuria noted in 1 patient (Be) increased during the last two weeks of desoxycorticosterone acetate therapy but decreased during the final period. The mild albuminuria found at the start of the experiment in a second subject (Ch) cleared completely during the course of the experiment. Just before the end of the last period, after desoxycorticosterone acetate and salt had been withdrawn, 1 subject (Va) developed pain in the left flank and gross hematuria; a left ureteral stone was later demonstrated. During desoxycorticosterone acetate therapy the ability to excrete phenolsulfonphthalein was not reduced in any of these patients.

COMMENT

The development of hypertension in 8¹¹ of 24 patients with Addison's disease when under treatment with desoxycorticosterone acetate confirms earlier observations suggesting that this hormone may have an effect on the blood pressure. Since this pressor effect of desoxycorticosterone acetate has furthermore been demonstrated in 3 subjects without adrenal disease, it cannot be considered a phenomenon associated solely with hypoadrenalism.

The mechanism of this elevation in blood pressure is not clear, but as yet there is no evidence in the group studied that it leads to progressive arteriolar changes such as may occur in hypertensive vascular disease or have been reported in animals by Selye.⁴

From the present study, the development of hypertension cannot be ascribed to the restoration of the electrolyte and fluid balance to normal in patients with previous adrenal insufficiency. This restoration occurs promptly when acute hypoadrenalism is treated with adequate salt and replacement therapy, whereas the hypertension observed after treatment with desoxycorticosterone acetate requires weeks or months to become apparent. Also no abnormal increase in blood pressure appeared in the group of Addisonian patients treated with salt alone over long periods of time, despite the fact that all those patients in whom it was measured

10. Noble, R. P., and Gregersen, M. I., to be published. Dr. Noble gave assistance in these determinations.

11. Four additional patients developing hypertension were excluded because of possible preceding cardiovascular disease.

maintained a normal serum electrolyte pattern and a normal blood volume.

It is apparent that the elevation of blood pressure cannot be correlated with excessive retention of salt or water in the circulating blood or with the development of edema. In the group of addisonian patients treated with desoxycorticosterone acetate the appearance of hypertension was not associated with abnormally high concentrations of the sodium ion in the blood serum. Furthermore, the circulating plasma volume lay within normal limits in 4 desoxycorticosterone acetate treated patients with Addison's disease at a time when their blood pressures were significantly elevated. In addition, the rise in blood pressure following the administration of desoxycorticosterone acetate in the group without adrenal disease was not consistently associated with an abnormal increase in blood volume. There was no correlation between the appearance of hypertension and the excessive accumulation of interstitial fluid in the addisonian patients treated with desoxycorticosterone acetate.

The possibility exists that unrelated hypertension may have been present in all of the group of addisonian patients who developed abnormal elevation of blood pressure during treatment with desoxycorticosterone acetate. This, however, seems improbable because of the fact that none of the patients in the comparable group treated with salt alone developed hypertension, although they were maintained in normal electrolyte and water balance. Furthermore, none of the patients who developed hypertension with desoxycorticosterone acetate therapy had elevation of blood pressure while on earlier treatment with salt alone.

There was no correlation between the appearance of hypertension and a positive cold pressor test in either the addisonian or the control group in the present study. It would therefore appear unlikely that a labile vascular system, as manifested by a positive cold pressor test, is the determinant for the development of hypertension with desoxycorticosterone acetate.

The mechanism of the elevated blood pressure following the prolonged administration of desoxycorticosterone acetate remains obscure. It does not appear to be referable either to abnormalities in the retention of salt and water or to underlying hypertensive disease. It seems probable that desoxycorticosterone acetate acts directly or indirectly on the peripheral vascular system.

CONCLUSIONS

1. The appearance of hypertension in a number of patients with Addison's disease in the course of prolonged treatment with desoxycorticosterone acetate has been confirmed. No similar increase in blood pressure followed the prolonged administration of salt alone.
 2. In 3 patients without adrenal disease, a gradual increase in blood pressure has been observed in association with the administration of desoxycorticosterone acetate. The blood pressure in these patients returned to control levels within two weeks following the withdrawal of desoxycorticosterone acetate.
 3. The increase in blood pressure cannot be correlated with abnormal retention of the sodium ion or with an increase in circulating blood volume.
 4. The increase in blood pressure observed is not apparently dependent on an abnormally labile peripheral vascular system as measured by the cold pressor test.
- 620 West 168th Street.

Clinical Notes, Suggestions and New Instruments

SPONTANEOUS RUPTURE OF AORTA IN SYPHILITIC AORTITIS WITH ANEURYSM

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That spontaneous rupture of the aorta in syphilitic aortitis without aneurysm is a rare event is indicated by the fact that it was encountered only twice in 73,607 necropsies performed in the thirteen general hospitals of the twenty-two hospitals of the Department of Hospitals of the city of New York. The literature on the subject seems to be limited to the statement that "a syphilitic aorta never ruptures unless it has given rise to aneurysm."¹ The 2 cases referred to are recorded in this report.

REPORT OF CASES

CASE 1.—History.—A man aged 40, Italian, a rubbish collector, was admitted to Bellevue Hospital in a moribund state and died twenty-five minutes later. It was said that he had been well until two hours before admission, when he complained of faintness, substernal pain and shortness of breath. On admission he was cyanosed, the hands were cold, no radial pulses could be felt, breathing was labored and the veins of the neck were engorged. The heart sounds were weak and distant. While in the hospital the patient vomited on frequent occasions. The condition of the patient's blood pressure before he entered the hospital was not learned.

Necropsy.—The body was well developed and well nourished, 162 cm. in height and weighed about 77 Kg. There was no external edema. The precordial area was greatly enlarged, the lungs pushed aside by the bulging pericardial sac. When the pericardium was opened, dark red fluid blood escaped. In the dependent part of the sac there was a large dark red jelly-like clot. The heart was contracted, and very little blood was found in it. The wall of the left ventricle was moderately thickened. The endocardium was well preserved with the exception of the posterior and right anterior aortic cusps, which were thickened at the margins adjoining the commissures. The commissures were widely separated. Lying beneath and elevating them were several hyaline plaques, which encircled the aorta immediately above the valves. Some of these plaques were finely wrinkled. Just above the posterior aortic cusp there was an irregularly lacerated aperture measuring 6 mm. in length and 4 mm. in breadth. The edges were serrated, reddish and infiltrated with blood. The remainder of the aorta appeared to be well preserved. The orifice of the right coronary artery was stenosed; that of the left was apparently normal.

Microscopic Examination.—Aorta: The adventitia was greatly thickened, owing to the presence of patches of connective tissue which were more or less well supplied with poorly nucleated fibroblasts and areas in which collagenous fibers were hyalinized. Scattered through the adventitia were large collections of lymphocytes and in other places smaller collections composed almost exclusively of plasma cells. The vasa vasorum were thickened and the lumens compressed. Some of them were surrounded by mantles of lymphocytes and plasma cells. Their walls were made up of loosely arranged fibromuscular tissue. In the media of the aorta the muscle was almost completely replaced by fibrous tissue. Those fibers that remained were granular and almost completely bereft of nuclei. The elastic tissue was relatively plentiful and the individual fibers were thickened, some of them split or frayed at the ends, others fragmented. Scattered through the media were numbers of small hyalinized scars arranged around the lumens of small vessels. Near the point of perforation the media showed a large hyalinized scar in which practically no nuclei were visible.

From the Laboratories of Pathology, Bellevue and Goldwater Memorial Hospitals.

1. Criteria Committee: Nomenclature and Criteria for Diagnosis of Diseases of the Heart, ed. 4, New York, New York Heart Association, 1939, pp. 35 and 226.

The intima in places was elevated and made up of a few fibroblasts lying close to the media. The connective tissue in the intima was anuclear, hyalinized and, in places, granular and necrotic.

Microscopic examination of the remaining organs, including the kidneys, showed nothing of importance in the present connection.

CASE 2.—History.—A man aged 79, Italian, who died within a period of about five minutes while bathing his face, had been under observation for five weeks because of signs of nephrosclerosis and so-called hypertensive heart disease. While in the hospital the blood pressure varied from 143/100 to 210/140. The Wassermann reaction was negative.

Necropsy.—The precordial area was enormous and was bluish red. The pericardium was distended by clotted blood in which the contracted heart was completely buried. The heart, with the attached aorta, weighed 760 Gm. The left ventricle measured 2.5 cm. in thickness just below the level of the posterior mitral cusp. When the heart was opened the endocardium was found to be smooth and glistening. The ascending aorta was dilated toward the right, where it was thinned. The aortic cusps were thin and pliable. The inner surface of the aorta from commencement to bifurcation, but particularly in the ascending portion, was light grayish and showed numerous firm elevated pearly plaques, some of which were wrinkled. On the left side of the aorta about 5 cm. above the sinuses of Valsalva was an oblique linear perforation. It measured 4 cm. in length and its edges were irregular and freshly hemorrhagic. The immediately surrounding adventitia was infiltrated with blood.

The kidneys were about normal in size. The capsules stripped without difficulty, leaving an irregularly scarred surface. Between the areas of scarring the surface was finely granular. On section the cortices were narrow and retracted, especially at the extreme periphery.

Microscopic Examination.—Aorta: The adventitia was moderately thickened and, in places, sclerotic and hyalinized. Scattered through it were collections of lymphocytes with a fairly liberal admixture of plasma cells. In some instances the vasa vasorum showed only slight thickening of the fibromuscular walls, occasionally accompanied by reduplication of the lining endothelium. In other instances the vasa vasorum were decidedly thickened, owing to hyperplasia of the muscular coat and reduplication of the endothelial lining, producing either eccentric or concentric and almost complete occlusion of the lumens. A few of the vasa vasorum were surrounded by collections of lymphocytes and a sprinkling of plasma cells. The media of the aorta was thinned and partly replaced by hyalinized connective tissue, which in places was distributed in such fashion that intima and adventitia were separated by a thin layer of compressed and atrophied muscle and remnants of elastic tissue. In addition, the media was replaced at intervals by scar tissue distributed around small blood vessels with thin walls. In specially stained sections the elastic tissue seemed to be greatly reduced in quantity and the individual fibers were sometimes thinned, at other times thickened. In numerous instances they had lost their wavy contours. Some of them were fragmented; others were reduced to shreds or clumps of granular debris. The intima was thrown into moundlike formations composed of poorly cellular, frequently sclerotic and sometimes hyalinized connective tissue.

Liver: In the liver were numerous focal collections of lymphocytes, many of which were associated with an admixture of a few fibroblasts and plasma cells. Some of these focal collections, which lay among and displaced the parenchyma cells, were centrally necrotic (miliary gummas).

Kidneys: The kidneys were congested, especially in the cortex, where the vessels in places were distended. Immediately beneath the capsule were numerous wedge-shaped areas composed of connective tissue supporting a few tubules in different stages of compression and dilatation, injected capillary vessels, glomeruli in various stages of fibrosis, some of them completely hyalinized, and lymphocytes arranged diffusely or densely in patches. Deeper in the cortex many of the arterioles were sclerotic and sometimes hyalinized. The arteries were similarly changed. The glomeruli were congested. In some of them

the capsular space contained coagulated granular material. In other instances the glomeruli showed productive capsular changes passing through various gradations to complete sclerosis and hyalinization. The convoluted tubules were moderately dilated, their lining epithelium granular and their lumens containing debris.

COMMENT

When syphilitic aortitis first attracted attention in this country it was observed that the microscopic changes were usually characterized by signs of activity.² As a rule there was nothing vague or indeterminate in the histologic picture. Gradually a period of transition set in and the tissues began to show modifications in the direction of inactivity. For some years past it has not been common in my experience to encounter syphilitic aortitis of other than the inactive or "burned out" variety. Inactivity appears to be brought about irrespective of treatment because inquiry almost invariably reveals that treatment was either neglected or inadequate.

In syphilitic aortitis the process of vascularization extends from the adventitia well into the media, replacing both muscle and elastic fibers, ending in the formation of scars. The intimal reaction, which consists of overgrowth of the sub-endothelial fibroblasts progressing to connective tissue formation followed by hyalinization, is commonly interpreted as a compensatory process. However this may be, the fact remains that the vessel wall is comparatively well fortified, although frequently injured in such fashion as to permit true aneurysmal dilatation and spontaneous rupture. In the 2 cases here recorded the changes in the aortic wall seem to me to have attained a degree of severity beyond that of the customary destruction and replacement of tissue, notably in the media. In the first case the elastic fibers, although plentiful, were thickened and shortened and had lost their wavy outlines, indicating, no doubt, loss of elasticity, and the muscle substance was almost completely replaced by fibrous tissue. In the other case the elastic fibers were reduced in numbers and thinned, and the inter-muscular connective tissues were sclerotic and hyalinized, sometimes to an extreme degree. In other words, the histologic changes in both cases showed injury of the vessel wall to an extent which seems to justify the appellation of a "burned out" process. It is true that most "burned out" syphilitic aortas do not rupture spontaneously, and doubtless some additional factor or factors are operative in those circumstances in which spontaneous rupture occurs without aneurysm. In case 1 of this report there was no obtainable record of the condition of the patient's blood pressure previous to admission to the hospital. Nevertheless, because of thickening of two of the aortic cusps and wide separation of the commissures it may be safely assumed that the patient suffered from some degree of aortic regurgitation attended with elevation of systolic blood pressure. In the second case there seems to be no doubt that rupture of the aorta was due to sudden increase in a degree of blood pressure already considerably above that of the normal.

In those cases of medial necrosis of the aorta in which spontaneous incomplete rupture occurs with the production of so-called dissecting aneurysms, the patients' blood pressure is practically always high and is commonly believed to be the immediate cause of the tear in a weakened vessel wall. It seems reasonable to anticipate that an elevation of blood pressure will be eventually shown to operate in spontaneous rupture of the aorta in uncomplicated syphilitic aortitis. In that section of his book on Human Pathology dealing with the subject of "dissecting aneurysm," Karsner³ states that "the lesion is rare in syphilitic aortitis." From this it may be inferred that "dissecting aneurysm" sometimes follows incomplete rupture of the scarred media of the syphilitic aorta and that an elevation of blood pressure is the immediate cause, as it is in "dissecting aneurysm" associated with medial necrosis of the aorta. Even from the scanty information available, the opinion seems to be justified that the rarity of spontaneous rupture of the aorta in syphilitic aortitis without aneurysm is due to the fact that in pure, uncomplicated syphilitic aortitis the blood pressure is normal or approximately so.

2. Symmers, D., and Wallace, G. H.: *The Etiology of Syphilitic Aortitis*, J. A. M. A. 60: 397 (Feb. 5) 1916.
3. Karsner, H. T.: *Human Pathology*, ed. 6, Philadelphia, J. B. Lippincott Company, 1912, p. 392.

Rottino and Poppiti⁴ have recently shown that thickening, hyalinization and wrinkling of the intima of the aorta closely resembling the intimal changes in syphilitic aortitis sometimes occur in association with medial necrosis and may be followed by spontaneous rupture and the formation of a "dissecting aneurysm." The naked eye appearances of such an aorta are apt to be deceptive, and microscopic examination should be made to exclude syphilitic aortitis.

CONCLUSIONS

Spontaneous rupture of the aorta in syphilitic aortitis without aneurysm occurs but is extremely rare. Rupture is complete, occurs without "dissection" and is rapidly followed by death from hemorrhage into the pericardial sac. An elevation of blood pressure is probably the precipitating factor in the production of the tear in a vessel wall which has already been severely damaged by syphilis.

THE RAPID IDENTIFICATION OF MUCOID HEMOLYTIC STREPTOCOCCI OF POSSIBLE EPIDEMIC ORIGIN

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In the search for epidemic strains of hemolytic streptococci, earlier investigations were related to the isolation of mucoid strains of hemolytic streptococci. It was pointed out that mucoid encapsulated streptococci have epidemiologic significance.¹ Milk borne epidemics of sore throat and scarlet fever have yielded consistently mucoid forms of beta hemolytic streptococci (*Streptococcus epidemicus*) if proper mediums and differential methods have been employed.²

To identify these mucoid strains readily a culture medium of ascites fluid added to fresh infusion blood agar has been described.³ As ascites fluid is not always available, the present study was directed to find a simple medium that could be used routinely for the rapid isolation of mucoid strains for grouping and typing.

Various mediums used in army laboratories were tried. Dehydrated brain heart infusion as prepared by Difco with 1.75 per cent agar furnished a satisfactory base for blood agar. Fresh moist plates with 5 per cent human blood inoculated with throat swabs, exudates and slant cultures from various sources gave striking results on both streaked and poured plates. In twelve to twenty-four hours the colonies appear large, mucoid, often ameboid and confluent, then rapidly flatten to smooth or wrinkled phases. Infusion agar prepared with various peptones including neopeptone failed to bring out the large mucoid growth.

In the spring and fall of 1943 in routine cultures of throat and nasopharynx of 150 individuals, including both normal persons and patients with upper respiratory infections, no mucoid hemolytic streptococci were encountered. A few green mucoid colonies proved to be type III pneumococci, none of the green variant of the alpha hemolytic streptococci prevalent during and immediately after the pandemic influenza of 1917-1918.¹ Throat cultures of patients with sore throat, scarlet fever and rheumatic fever, none of which were related to milk borne infection, frequently yielded predominant numbers of mucoid hemolytic streptococci often in pure culture. As previously observed, these streptococci appear etiologically related and can be readily followed and correlated with clinical course, complications and sequelae, especially with reference to rheumatic manifestations.²

By Lancefield's method of grouping, the mucoid beta hemolytic streptococci uniformly fell into group A. Typing by Griffith's slide agglutination method classified some strains as

type 1, 3 and 14. Many of the mucoid strains were difficult to type clearly by this method and were sent to Dr. M. T. Hamburger, who by the new Wilson-Lancefield capillary precipitin method⁴ typed these strains predominantly as 17 and a few 19 and 30.

Type 17 was largely from scarlet fever patients, types 1, 3 and 14 from throats in early stages of rheumatic fever. Types 1 and 14 produced definite purulent arthritis in young rabbits injected intravenously with 0.1 cc. of twenty-four hour broth cultures.

Of special interest are the recent reports of milk borne outbreaks of sore throat and scarlet fever, now traced to serologically specific types of hemolytic streptococci.⁵ Among these epidemics type 3 accounted for three outbreaks, 2 and 17 for other episodes. These types appear to be sources of epidemic strains, but no mention is made of any mucoid property. However, our past experience with strains from milk borne epidemics of sore throat has emphasized this important characteristic.⁶ The mucoid strains are particularly responsible for the bovine mastitis which is the source of epidemic milk borne septic sore throat and scarlet fever. Experimentally the mucoid strains ascend into the udder by simply smearing the teat and cause a similar mastitis.⁷ This aggressive property of the mucoid strains is further demonstrated by the frequency of their occurrence in otitis media, mastoiditis and meningitis complicating sore throat.⁸

SUMMARY

During periods of high incidence of scarlet fever, sore throat and rheumatic fever many beta hemolytic streptococci may be found in throat cultures. Attention to mucoid forms will simplify the isolation of etiologically related strains.

By the use of brain-heart infusion blood agar, mucoid beta hemolytic streptococci can be isolated readily and then grouped and typed to ascertain their epidemiologic importance.

PALINDROMIC RHEUMATISM

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In June 1940 Hench and Rosenberg¹ described a new syndrome called palindromic rheumatism. At that time they described findings in 34 cases. There is much to indicate that this is actually a disease entity. In the army, where one sees so much real and neurogenic arthritis, it is not unusual that an occasional case of palindromic rheumatism should be found. This case is being reported because the condition has only recently been recognized as a disease entity, and it is felt that more cases will be found if the attention of physicians is directed toward this disease.

REPORT OF CASE

History.—A soldier aged 23 from Ohio was admitted to the Station Hospital, Camp Gruber, Oklahoma, with the chief complaint of recurrent attacks of pain and swelling of the wrists and ankles. The soldier had been in the army for one year but was unable to do his required duties because of attacks of joint pain. The attacks were characterized by sudden onset with considerable pain, moderate swelling, mild redness, slight increase in warmth and pronounced disability of

4. Swift, H. J.; Wilson, A. T., and Lancefield, R.: Typing Group A Hemolytic Streptococci by M Precipitin Reactions in Capillary Pipettes, *J. Exper. Med.* **75**: 127, 1943.

5. Dublin, T. D.; Rogers, E. F. H.; Perkins, J. E., and Graves, F. W.: Milk Borne Outbreaks Due to Serologically Typed Hemolytic Streptococci, *Am. J. Pub. Health* **33**: 157, 1943.

6. Pilot, I., and Davis, D. J.: Mucoid Encapsulated Hemolytic Streptococci in Sporadic and Milk Borne Scarlet Fever, *J. Infect. Dis.* **53**: 29, 1933.

7. Davis, D. J.: Bovine Mastitis in Relation to Milk Borne Epidemics, *J. Infect. Dis.* **60**: 374, 1937.

8. Pilot, I.; Lampert, M., and Davis, D. J.: Otitis Media and Mastoiditis Due to Streptococcus Epidemicus, *J. Infect. Dis.* **48**: 498, 1931. Pilot and Davis.²

1. Hench, P. S., and Rosenberg, E. F.: Palindromic Rheumatism: A "New," Oft Recurring Disease of Joints (Arthritis, Periarthritis, Pararthritis) Apparently Producing No Articular Residues; Report of 34 Cases (Its Relationship to "Angioneural Arthrosis," "Allergic Rheumatism" and Rheumatoid Arthritis), *Proc. Staff Meet., Mayo Clin.* **16**: 808-815 (Dec. 17) 1941.

4. Rottino, A., and Poppiti, R.: Intimal Changes in Medial Degeneration of the Aorta, *Arch. Path.* **36**: 201 (Aug.) 1943.

From the Sixth Service Command Laboratory, Fort Sheridan, Illinois, and from the Department of Pathology and Bacteriology, University of Illinois College of Medicine, Chicago.

1. Pilot, I.: Differentiation of Streptococcus Epidemicus, *J. Infect. Dis.* **55**: 228, 1934.

2. Pilot, I., and Davis, D. J.: Sporadic Septic Sore Throat, *J. A. M. A.* **97**: 1691 (Dec. 5) 1931.

3. Pilot, I.; Hallman, B., and Davis, D. J.: A Culture Medium for the Isolation of Streptococcus Epidemicus of Septic Sore Throat, *J. A. M. A.* **95**: 264 (July 26) 1930.

the involved joints. No chills, fever or other symptoms were experienced. An attack often began and reached its height in a period of ten to twenty minutes, but most attacks came on over a period of eight to eleven hours. The first attack occurred at the age of 16 years, and subsequent attacks have occurred approximately once or twice a week. Well over two hundred attacks have been experienced. Practically all joints in the body have been involved, but the attacks have been localized largely to the wrists and ankles. Usually only one joint was involved. Some attacks have lasted only thirty minutes, while others caused distress for as long as two weeks. Attacks have been so severe that they cause him to cry out with pain. No known precipitating causes could be elicited. Attacks were not precipitated by nervousness, worry or changes in weather. He was tested for allergic factors, but none were present. The patient's history and his family's history were entirely negative for rheumatic or allergic manifestations. His father died of tuberculosis, but the patient has been frequently checked by roentgenographic and other methods, and at no time has he been found to have this disease. The family history was entirely noncontributory. Some relief was obtained from heat and slight relief from alternately immersing the involved joint in hot and cold water. Acetylsalicylic acid gave temporary relief. Injections of epinephrine did not alter the pain or swelling. The review of systems revealed that he had only light perception in the left eye, because of an old external strabismus. The right eye was essentially normal. He had occasional left frontal headaches, but they were not severe. The cardiovascular, respiratory, gastrointestinal and genitourinary systems were entirely normal. The patient was quite nervous. He had moderate tendency to worry, was quite irritable and was bothered by insomnia to a mild degree. He felt definitely that his condition was gradually getting worse.

Physical Examination.—The patient appeared essentially normal. He was 68 inches (173 cm.) in height and weighed 132 pounds (60 Kg.). The heart was normal in size, rate and rhythm. The blood pressure was 120/80. The lungs were clear. The liver and spleen were not palpable, and no abdominal masses were present. Approximately seven attacks were experienced while he was in the hospital. One attack was observed to appear and reach its height within a period of ten minutes. The duration of this attack was approximately six hours. The right wrist was noted to become slightly swollen, moderately warm and exquisitely tender during each attack. On one occasion there was periarticular swelling of the lateral flexor surface of the right wrist involving an area of approximately 2.5 cm. in diameter. This area was tender and painful. There was no itching, and it did not appear to be due to angioneurotic edema. Both passive and active movement of an involved joint caused much pain. There was no atrophy of the tissues about the involved joints, and roentgenograms of the wrists and ankles were entirely negative. No skin rashes were present, nor was there any evidence of allergic manifestations noted at any time. No fever or chills were present. Laboratory examinations were all within normal limits. The urine showed a specific gravity of 1.023. No albumin was present, and microscopic examinations were negative. The leukocyte count was 8,200, with 68 per cent polymorphonuclears and 32 lymphocytes. The erythrocyte count was 4,000,000, with 81 per cent hemoglobin. Repeated sedimentation rates were normal, as was the electrocardiogram. Agglutination tests for brucellosis were negative. Uric acid was 2.6 mg., cholesterol 115.2 mg. and calcium 9.9 mg. per hundred cubic centimeters. Unfortunately a determination of fatty acids and total lipoids could not be obtained. Skin and food tests for allergy were negative. No relief was noted from injections of epinephrine.

COMMENT

This case represents a typical picture of palindromic rheumatism as described by Hench and Rosenberg.¹ The characteristic features were multiple afebrile attacks of acute arthritis and periartthritis. There were mild redness, moderate to mild swelling, moderate tenderness and pronounced disability of the joint during an attack. Attacks involved only one joint at a time, and they occurred suddenly and were frequently of short duration, lasting from several hours to fourteen days. No

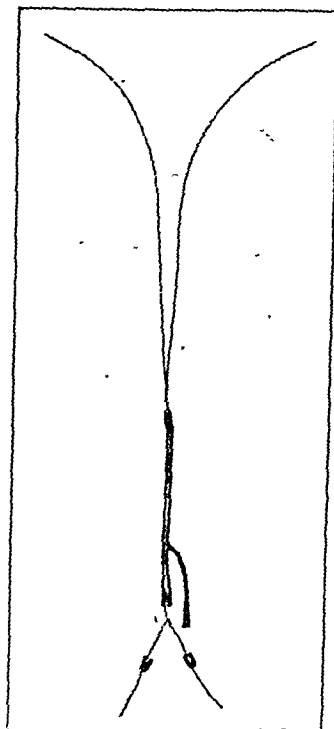
constitutional reaction was present, and the sedimentation rate and other laboratory findings were normal. The blood cholesterol was slightly lower than normal, being 115.2 mg. per hundred cubic centimeters, but the exact significance of this is not known. Dr. Hench found the fatty acids and total lipoids moderately elevated in his cases, but unfortunately these tests were not performed in this case. Roentgenograms during and between attacks were normal. No evidence of vasomotor instability was noted. A thorough survey revealed no allergic factors.

This represents a typical case of palindromic rheumatism. Perhaps this syndrome occurs more frequently than is generally realized, and as physicians become cognizant of its features it will be diagnosed more often.

CATHETER INCONTINENCE FOLLOWING CYSTOSCOPY

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Cystoscopy, with indwelling ureteral catheters as its objective, entails some discomfort to the patient when drainage must be established for a period of time. One of the most annoying sequelae is in the female patient, in whom large quantities of urine pass around the catheters through the urethra. The dilemma of continuous confinement on the bed pan or perpetual changing of bedclothes is a serious nursing problem, to say nothing of the dangers to the patient. The possibility of upper respiratory infections is increased by moisture. There is no rest for the wet.



Apparatus for keeping patient dry after cystoscopy

The apparatus described here has solved the problem of keeping the patient dry. It consists in threading a Foley female number 22 French catheter, 5 cc. bag capacity, over the distal ends of the ureteral catheters. A copious supply of surgical lubricant is applied to all catheters. The bag is distended after introduction into the bladder, and the bladder outlet is occluded with gentle traction. To facilitate its passage over the ureteral catheters, that portion of the catheter tip including the fenestra is cut off. The protruding ends of the ureteral catheters are threaded in a glass inverted Y tube and brought out on the proper side through cystoscopic nipples and connected with sterile containers. The urine that enters the bladder from around the ureteral catheters may cause some retention. The Y tube may be disconnected and the bladder drained ad libitum. Usually once a day suffices.

Sulfonamide therapy is contraindicated, owing to the danger of the accumulation of crystals around the foreign body. In a few cases in which these drugs were used, removal of the catheter was difficult because of chemical deposits.

Anatomic differences make this apparatus more practical for the female than the male, although it may be used for either sex. Man is not an amphibious animal, and the comfort, rest and dryness results in a grateful patient and solves a nursing problem.

1926 Eye Street N.W.

Special Article

AMERICAN HEALTH RESORTS

TREATMENT OF CONDITIONS AFFECTING THE GENERAL NERVOUS SYSTEM

THE PLACE OF HEALTH RESORT THERAPY

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HOT SPRINGS NATIONAL PARK, ARK.

These special articles on spa therapy and American health resorts were prepared under the direction of the Committee on American Health Resorts. The opinions expressed are those of the authors and do not necessarily reflect the opinion of the committee. These articles may be published later as a Handbook on Health Resorts.

The term health resort may be applied loosely to any place from a "dude ranch" to a well set up spa where facilities are available for therapeutic baths and physical therapy as well as understanding, intelligent medical care and recreational features.

In one category we think of the three R's Rest, Recreation and Recuperation, and in another we think of means of bringing about relief of pain, improvement in muscle tone and coordination whereby a patient may regain, at least in part, that which has been lost.

While climate may be a factor, the most important requirements to be considered are (1) good medical care, (2) adequate facilities, well regulated, for giving the different forms of treatment and (3) a setting which will be conducive to peace of mind in the patient.

There is no place in the setups of spas for the advertising of "miracles," and only facts, unglamorized, should be stated; otherwise there will be the danger of a "racket" developing.

While health resorts do not all have hydrotherapy available, and some resorts, such as those catering to chest diseases, do not need hydrotherapy, the type of patient discussed in this paper will need this service.

An outstanding factor in favor of going to a resort for the "cure" is that a person gets away from worries present at home, meets new people, and, whereas ordinarily he would find too many things to interfere with going to see his doctor, he has nothing else to do but make a business of getting well. He is able to follow a regular schedule without thinking of the office and, seeing others following such a schedule, he does not feel at all out of place. He will follow out his physician's orders, feeling that he is preparing himself to resume his labors in a better physical and mental condition.

Many things may be done with water. We may confine our treatments to underwater or pool baths if these are indicated or, on the other hand, we may go into the other departments where we may receive the tub bath, packs to various parts of the body, sitz baths, salt gloves, scotch douches where desired, needle showers, whirlpools, cabinets or massage, and many of these may be combined to bring about results depending on the patient's complaints. For instance, a patient with a lame shoulder may need a douche and hot packs on the shoulder, and one with hemorrhoids or a prostatitis may obtain much comfort from a prolonged sitz bath. It is not unusual for a pool patient, perhaps a "polio" or spastic, to request that he be allowed to take an occasional routine bath as a sort of vacation from the pool.

Lowman,¹ in speaking of pool therapy, states that "it is generally conceded that the medical profession's failure to recognize its value has not only retarded hydrotherapeutic development and use in this country but has caused the adoption of various hydrotherapeutic procedures by unethical cults and quacks." Water, probably the oldest medium of physical treatment, possesses greater possibilities for good in physical rehabilitation than any other modality. Right here it might be said that the United States government, realizing the truthfulness of this statement, is sending here, and probably to other spas, great numbers of soldiers who have developed disabilities from army and navy service. For many years it has been realized that it is easier to perform exercises in the water than under normal atmospheric pressure. This is especially striking in the case of treatment of extremities which have been greatly weakened by paralytic or paretic conditions, so this knowledge has led to the application of underwater treatment to the reeducation of disabled or impaired muscles. Archimedes' law of displacement explains the advantages to be expected by underwater treatments.

The history of the use of water in the treatment of disease, while most interesting, would constitute a complete discussion in itself. Here we are dealing not only with organic disease of the central nervous system but also with the psychoneurotic and other similar mental conditions. The patient who is "just nervous" is depressed, has a feeling of inward tension and is generally unhappy.

A simple classification of the diseases of the central nervous system seen at resorts is as follows:

1. Spastic paralysis.
2. Flaccid paralysis with atrophy.
3. Sensory changes which may accompany either of the foregoing.
4. Peripheral nerve conditions such as neuritis and neuralgia.

Of the functional diseases seen at resorts the following are the most usual:

1. Psychoneurosis.
2. Simple depressions.
3. Involuntary depressions which will not be helped by resort treatment alone.
4. Exhaustion states following unusual stress in business or home life or following a prolonged illness.

Then there will be a certain number of patients with Parkinson's disease or the syndrome following encephalitis, together with a few patients exhibiting a fine tremor such as that found in hyperthyroidism.

It is a well known fact that a body in water will weigh much less than it would outside the water; for instance, a body weighing 132 pounds outside the water will weigh only 6 pounds when submerged, and by using this principle it is easy to see why weakened muscles and joints can perform acts which would be impossible without this buoyancy. The psychologic reaction in a patient who has been bedridden is often dramatic when he finds himself able to move in the water whereas in bed he was "just too heavy." The word "pool" has been associated with swimming so long that one may think only in these terms, and we do know that there is a place for supervised swimming along with the other exercises; but unsupervised swimming might cause harm, owing to the fact that the patient may have to learn to swim over again and in doing so find that the old muscles he formerly used are no longer func-

1. Lowman, C. L.: *Technique of Underwater Gymnastics*, Los Angeles, American Publications, Inc., 1937.

tioning well and there may be a tendency to swim the wrong way just to make progress through the water. That is why swimming should be supervised and the patient be made to swim correctly even though it may be the hard way.

It does not matter so much whether there is a large pool with varying depths of water or a smaller tub arrangement such as the Hubbard tub and its modifications, so long as we have carefully worked out the muscle groups, impaired joints and limitations of motion in order that we may write an intelligent and easily followed set of instructions for the physical therapist who will supervise the treatments.

Poliomyelitis has been in the public mind for years, and the idea prevailed that this disease alone was benefited by underwater therapy; but we have learned that the bulk of our patients will come from those having peripheral nerve injuries, either from disease or from trauma, patients showing poor coordination, those having spasticity, and arthritic patients with contractures and limited motion in joints. By reeducation we bring to the consciousness of the patient what should normally be expected of a group of muscles, and he in turn learns why he cannot perform acts normally and by reasoning begins to try to bring the right muscle or group of muscles into play in a normal manner. This is, of course, where we depend on a well trained physical therapist to see that the patient understands what muscles are defective and how to benefit from the exercises intended to bring about renewed function. One will see a knee joint which cannot be straightened, perhaps because of the patient's having slept with a pillow beneath the knee when the disease was in the acute and painful stage. Then there might be the same condition in an elbow or other joint. Frequently traction may gradually straighten such a joint; but it must be remembered that applying traction on the ordinary bed is not very pleasant to the patient because the body, on account of its weight, literally "hugs" the bed. However, when such traction is applied under water on a special table, the body floats free of the table and the patient, being much more comfortable, will allow more traction to be applied.

Children always like to play in water, which is one reason why they take to the pool as a plaything rather than a treatment; however, the physical therapist should know how much play to allow and how much serious thought should be given to the problem at hand. The little fellows, as in swimming by adults, might easily adopt wrong postures and wrong use of muscles if allowed to move about the easiest way.

Stress has been made on the fact that a physical therapist should be in attendance at all times. At Hot Springs National Park the Department of the Interior will not allow any one to take pool treatments without having been examined by a registered physician and under the care, in the pool, of a graduate physical therapist. Masseurs available in other departments for routine massage are not used in pool treatments except under supervision of the physical therapist.

It is required that the physical therapist make a complete chart of diseased muscles and joints when he first sees the patient after the doctor has made his examination and written his directions; then at frequent intervals he reexamines the defective parts and makes a written report to the patient's physician, thereby keeping him informed of the patient's progress and enabling the doctor, if he so desires, to advise the patient's home physician when the time comes for the patient to go

home. When these reports are received it is not infrequent for some changes to be found desirable.

One with a mechanical mind may devise any number of contrivances in a pool to take care of defective function. Bicycles, walking apparatus, floating objects, whirlpools, traction tables and any number of other devices come to mind when one begins to think of what one wishes to accomplish for the individual.

The water temperature of about 90 F. is much less than would be used in the other departments, and some doctors advocate pools of different temperatures for different types of involvement; but it should never be hot enough to bring about exhaustion from the exercises. The expense of heating and cooling water is no small item, but where natural hot water is available this expense is not a factor.

In the other types of baths one must have trained attendants who can follow written directions. Suppose I give a cross section of what may be obtained in this type of bath. The patient is first placed in a large tub with temperature ranging from 90 to 105 F. He may drink two or more cups of hot water and have a brisk rubdown with a bath mitt. If indicated he may go to a "head in" or "head out" cabinet for a few minutes, and this may be followed by a salt glow and scotch douche, or he may go to the sitz bath for five or more minutes at a temperature up to 105 F. Then he may go to the pack room, where hot wet towels are applied to the affected parts, and here he may drink more hot water. If perspiring freely he may wish a cool towel to the head. The next step is the needle shower and a good rubdown with a large rough towel, after which he goes from room to room, each being slightly cooler than the preceding one, until he has reached a temperature corresponding with that on the outside.

There are variations to the foregoing procedures too numerous to mention. Many patients will wish to go to the massage room after the bath or, in case of women, to the beauty parlor. A gymnasium is available at all bath houses, and many persons may like to have a workout before going to the bath. The use of electrical apparatus is not allowed except in the pool, where muscles are tested for reaction of degeneration.

It can readily be seen that times and temperatures are important and must be considered when writing a bathing direction. For instance, a person with low blood pressure would not tolerate high temperatures and prolonged heat as well as one with a normal blood pressure. Then profuse sweating as induced by drinking water and going into cabinets would not be advisable in all cases. It is certainly advisable for every person to be examined before taking baths, but it has not been made obligatory.

Many patients with incurable diseases will go to a health resort year after year because they have derived some benefits and feel that the yearly visits are worth while. They have been made happier by doing so.

It is highly important that the home physician try to cooperate with the resort physician because, after all, the home physician has probably known the patient for many years and can make helpful suggestions which will be welcomed by the resort physician. Some physicians will tell their patients that they can do just as well in their own bathroom as they can elsewhere, but they lose sight of the fact that a supervised hydrotherapeutic program accomplishes something which cannot be accomplished by bathing in the home. Fortunately many physicians welcome the availability of spas for the treatment of some of their difficult patients, and I

have found it advisable and helpful to communicate with the home physician from time to time receiving and applying their suggestions. We of the spas always welcome a letter from the home physician when the patient arrives in our offices.

While baths "per se" may not be the whole story so far as "nervous" patients are concerned, these persons enjoy routine and "something to do" as a vacation from sedatives and other drugs, and the meeting of new people together with the new interests to which they have not been accustomed will enable patients to get away from that state where they may literally draw a circle about their feet and be unable to step out of it. The fact that year after year patients with organic and functional disease of the nervous system have returned to resorts is indication enough that benefits have been obtained by these visits, and this fact alone establishes the importance of resorts in the scheme of life and medical management of disease.

Council on Foods and Nutrition

THE COUNCIL ON FOODS AND NUTRITION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

GEORGE K. ANDERSON, M.D., Secretary.

THE MECHANICAL COW

The "mechanical cow" is a machine manufactured by the United Dairy Equipment Company of West Chester, Pa. The purpose of the machine is to mix water, spray-dried skimmed milk and butter to produce a product which can substitute for milk or cream according to the proportion of ingredients employed. The preparation of an ice cream mixture is also included among the purposes of the machine.

The machine contains a mixing-pasteurizing tank for starting the process; the final product passes over a cooler. The unique feature of the machine consists of a vertical cylinder nearly 2 inches in diameter rotating at high speed (22,000 revolutions per minute), which emulsifies, homogenizes and clarifies the product. The mixed, pasteurized product is drawn into the rotating cylinder from below by centrifugal force. Immediately above the intake a set of vertical blades, moving at the same speed as the cylinder, splashes the product against the cylinder wall with great force, partially emulsifying the mixture. Because of continued flow of milk from below, the thin layer of milk along the side of the cylinder passes upward toward the outlet at the upper end of the cylinder. During the passage upward the milk is under centrifugal pressure of between 200 and 300 pounds to the square inch. In this upward passage any particles heavier than milk cling to the wall of the cylinder, thus producing a clarifying effect. The top of the cylinder is capped by a disk with small circular holes at its periphery. The milk leaves these holes at a pressure of 200 to 300 pounds to strike against the side of the receiving chamber, thus further emulsifying and homogenizing the product.

The "milk" produced by the mechanical cow, if sold, would be required to have a label declaration other than milk or in addition to milk. Though it may be prepared wholly from milk constituents which have been separated and remixed, the product is not milk under the legal definition of this term. The term "reconstituted milk" presumably is legally applicable.

In most respects the "milk" produced by the mechanical cow has all the food value of fresh milk. However, it is well known that the heat treatment incident to pasteurizing and drying causes decrease in thiamine and ascorbic acid content. An analysis submitted by the manufacturer indicates that no ascorbic acid is present in the final product and that a loss of approximately 15 per cent occurs in the thiamine content. A further loss of thiamine seems likely with storage of the dried milk. Despite these losses, the product has high nutritional value and nutritionally is an excellent substitute for milk.

The product of the machine has a low bacterial content when all instructions have been followed. The instructions include

rigid cleanliness of the machine. It is the preference of the manufacturer that the butter and dried skimmed milk be obtained from him, thus possibly making more certain that the components of the product have a low bacterial content. Normally dried skimmed milk may be expected to have few living bacteria. The butter recommended is prepared from sweet pasteurized cream and is unsalted. Salted butter may be used by means of an additional centrifugal bowl which will produce a salt-free butter. The pasteurizing of cream for butter making is commonly carried out at a temperature higher than that used for the pasteurization of milk, thus tending toward a lower bacterial content. Starting with components having few bacteria, and with pasteurizing of the mixture at the beginning of the process, the bacterial content should compare favorably with that of good certified milk which has been pasteurized. The manufacturer states that under conditions of testing the average number of bacteria is approximately 100 to the cubic centimeter.

The manufacturer of the mechanical cow has foreseen a shortage of butter in various parts of the world and the lack of refrigerated shipping space for its transport. Vitamin fortified vegetable oil substitutes for butter have been devised which make a product acceptable as to taste and which can be shipped and stored more easily than butter. The "milk" prepared with such a butter substitute would be the equivalent of "filled milk." Though such a product would have many nutritional virtues, it is one which has little legal standing in this country. The Council on Foods and Nutrition cannot give its approval to illegal products.

The principle of production of "milk" by the mechanical cow merits approval when dried skimmed milk, butter and water are the ingredients. Dried skimmed milk and butter have keeping qualities not possessed by fresh milk. The machine is useful in supplying a good substitute for milk and cream. It is useful on ships and in regions where dairies are inadequate or nonexistent. Many such regions exist in this country, and their number has been increased because of war conditions. Since the product can be prepared under some circumstances at a cost somewhat less than that of fresh milk for retail distribution, conceivably it could enter into competition with fresh milk.

ACCEPTED FOODS

THE FOLLOWING ADDITIONAL FOODS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON FOODS AND NUTRITION OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO ACCEPTED FOODS.

GEORGE K. ANDERSON, M.D., Secretary.

CANNED AND DRIED FRUITS AND FRUIT PRODUCTS (See Accepted Foods, 1939, p. 70).

Pasco Packing Association, Dade City, Fla.

OLD SOUTH BRAND CONCENTRATED ORANGE JUICE, a pasteurized orange juice concentrate formed by evaporating freshly expressed orange juice under reduced pressure to a Brix of 65 degrees. It is pasteurized, but the firm recommends that it be kept at a temperature of 45 degrees or less.

Analysis (submitted by manufacturer).—Moisture 28%, ash 1.8-2.0%, fat (ether extract) 1.0%, protein (N \times 6.25) 5-6%, sucrose 28%, reducing sugar 28%, citric acid 3.9-6.0%, ascorbic acid 180-300 mg. per hundred grams, specific gravity 1.33.

Calories.—2.4 per gram; 68.16 per ounce.

Vitamin Claims.—Ascorbic acid (determined by the Dye method) on the basis of the median of range reported, using a dilution of 6% additional parts of water (firm recommends addition of six or seven parts); the resulting drink contains 49.6 mg. of ascorbic acid per hundred cubic centimeters.

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, 1939, p. 156).

Gerber Products Company, Fremont, Mich.

GERBER'S CHOPPED VEGETABLE AND BEEF WITH RICE, consisting of potatoes, water, celery, beef, tomato pulp, carrots, rice, salt and onion powder.

Analysis (submitted by manufacturer).—Moisture 87.8%, ash 1.3%, fat 0.5%, protein (N \times 6.25) 2.8%, crude fiber 0.4%, carbohydrates (by difference) 7.2%, Ca 0.018%, P 0.037%, Fe 0.0021%, Cu 0.00029.

Calories.—0.4 per gram; 13 per ounce.

Vitamins.—Protocols of vitamin assay (1941) show that this product contains 1,400 international units of vitamin A, 0.032 mg. of thiamine and 1 mg. of ascorbic acid for each hundred grams.

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SATURDAY, AUGUST 12, 1944

AID TO PHYSICALLY DISABLED

Plans are being formulated by a subcommittee of the House Committee on Labor, of which Congressman Kelley of Pennsylvania is chairman, for an extensive survey of the extent and character of aid given by the federal, state and local governments and by private agencies to the physically handicapped. This survey is to be conducted under authority of a House resolution adopted by the House of Representatives June 20. According to the chairman of the subcommittee, it was estimated that before Pearl Harbor some 800,000 people became physically handicapped each year. Since that time the number has increased greatly. The survey will be designed to explore the problem of unemployment of the physically handicapped persons in the United States, estimated at some 25,000,000, and to provide a means whereby Congress may be possessed of the requisite knowledge to deal with the problem. All categories of the physically handicapped, it is understood, will be covered by the study, including persons with amputated limbs and with cardiac disorders, victims of infantile paralysis, the blind, the deaf and the hard of hearing. The subcommittee, on the basis of information it obtains, is expected to submit a program to Congress for the assistance of the physically handicapped to the end that they may be profitably employed. The extent to which this program may involve an extensive health program for the physically disabled cannot at this time be accurately anticipated.

Proposals to amend the Social Security Act specifically to provide benefits for the adult physically disabled have been made from time to time. Several bills of this type are now pending in Congress before the House Committee on Ways and Means and the House Committee on Education. The Congress has only recently enacted broad legislation for the rehabilitation of disabled veterans, which program will be under the administrative guidance of the Veterans' Administration. It has also extensively revised the

Federal Vocational Rehabilitation Act to provide for the physical restoration of civilians, and this program is being administered by the Federal Security Agency.

Chairman Kelley, in referring to the uncorrelated existing programs, said that at the present time something like eighteen different governmental agencies have something to do with the physically handicapped. The need for a consolidation of federal activities in the field of health and related fields has been recognized by the House of Delegates for many years. If the Kelley subcommittee will recommend that federal activities relating to the physically handicapped be consolidated in an appropriate federal agency, such as the Federal Security Agency, and if that recommendation is accepted by the Congress, another step will have been taken to effect a long delayed—too long delayed—simplification of federal participation in health and allied programs. Hearings will be scheduled by the Subcommittee to Investigate Aid to Physically Handicapped within the near future.

VIRULENCE OF PENICILLIN RESISTANT BACTERIA

Encouraging new data regarding the virulence of penicillin resistant staphylococci are reported by Spink and his associates¹ of the division of internal medicine, University of Minnesota Medical School. As a result of an inadequate therapeutic dose or of test tube exposure to nonsterilizing concentrations of penicillin, pathogenic bacteria may become penicillin resistant. This acquired resistance is a relatively stable hereditary characteristic of the micro-organisms, persisting through innumerable test tube generations. Generally it is assumed² that micro-organisms with this acquired penicillin resistance do not show other changes in their biologic and metabolic characters and thus constitute an additive epidemiologic danger.

Spink isolated four strains of coagulase positive staphylococci from osteomyelitic lesions in children, with a later duplicate strain from 1 child after it had received inadequate therapeutic doses of penicillin. The four strains thus obtained were approximately equal in their resistance to penicillin, growth being completely inhibited by the addition of from 0.04 to 0.06 Oxford unit per cubic centimeter of culture medium. The four strains were gradually adapted to penicillin by daily transfer to culture medium containing increasing concentrations. Control daily transfers in penicillin free medium were made with each strain. After a hundred or more serial transfers each strain had become penicillin resistant. With two of the strains complete

1. Spink, W. W.; Ferris, V., and Vivino, J. J.: *Proc. Soc. Exp. Biol. & Med.* 55: 210 (March) 1944.
2. Abraham, E. P.; Chaim, E.; Fletcher, C. M.; Gardiner, A. D.; Heatley, N. G.; Jennings, M. H., and Florey, H. W.: *Lancet* 2: 177 (Aug. 16) 1941.

inhibition of growth now required as much as 80 to 120 Oxford units per cubic centimeter, or 2,000 times the penicillin concentration necessary for complete inhibition of the parent strain. These two strains were transferred to veal-agar slants and placed in a refrigerator for three months, at the end of which period they showed no decrease in their acquired penicillin resistance.

The acquired penicillin resistance was associated with morphologic changes in each culture. Each resistant strain showed pleomorphism, with large spherical cell bodies quite apparent. Two of the parent strains produced a brown-orange pigment under certain culture conditions, which pigment was greatly decreased in amount in the homologous adapted strains. In four of the five adapted strains the rate of test tube proliferation was distinctly slower than with the parent culture. These facts suggest both a morphologic and a metabolic deterioration of staphylococci as a result of the acquired penicillin resistance, giving rise to the hope that the adapted strains are of reduced pathogenicity or virulence.

To test this hoped for loss of virulence Spink adopted a technic previously developed in his laboratory,³ that of titrating the resistance of each strain against the bactericidal properties of defibrinated normal human blood. To each 0.5 cc. of fresh defibrinated blood there was added 0.1 cc. of a serial dilution of twenty-four hour broth cultures of the organism to be tested, seven 1:10 serial dilutions being tested with each strain. The approximate number of organisms thus added to each test varied from approximately 25,000,000 down to 25. The tubes were then sealed and rotated for forty-eight hours at incubator temperature, at the end of which time the contents of each tube were tested for sterility.

In a typical experiment the 25 penicillin susceptible staphylococci in the seventh tube failed to grow, while the first to sixth tubes did not become sterile. The 0.5 cc. blood sample used in this test was therefore able to kill between 25 and 250 penicillin susceptible staphylococci, or approximately 275 staphylococci per cubic centimeter. In a parallel test with a homologous penicillin resistant strain a duplicate human blood sample killed between 11,000 and 110,000 adapted staphylococci, or approximately 120,000 staphylococci per cubic centimeter. The penicillin resistant strain was thus four hundred times more susceptible to the bactericidal properties of human blood than the parent strain from which it was developed. Similar decreases in microbic vigor were demonstrated for all penicillin resistant strains thus far tested.

These results are in contrast to results of a parallel study of strains of staphylococci adapted to grow in

the presence of sulfonamides. Defibrinated human blood has no greater bactericidal action on sulfonamide resistant strains than on the parent sulfonamide sensitive strains from which they were developed. If adequately confirmed, these results suggest that, while sulfonamide resistant strains of staphylococci may function as an additive epidemiologic danger, acquired penicillin resistance of staphylococci is of relatively little hygienic interest. No theory is as yet suggested to account for this difference. Whether or not the same difference is demonstrable in micro-organisms other than staphylococci has not yet been reported.

WORKMEN'S COMPENSATION FOR CANCER ASCRIBED TO SINGLE INJURY

Under workmen's compensation acts a claim that a workman has died or been disabled because of a cancer resulting from an industrial accident is decided in the first place by an industrial board or some equivalent tribunal. Such tribunals, even though without legally qualified physicians and lawyers among their members, have to decide questions of law and of fact as they arise and make their awards accordingly. The laws governing appeals from such awards vary in the different states, but in many states an appellate court may set aside an award or remand a case to the industrial board for further proceedings only because of errors of law. The board's findings as to fact are not open to review except that the appellate court may determine whether such findings are based as the law requires on reasonable evidence.

Whether or not a fatal or disabling cancer was caused by an industrial accident is certainly a question not of law but of fact. If reasonable evidence has been introduced in the proceedings before an industrial board to sustain a finding that an industrial injury, single or multiple, has caused a cancer that resulted in disability or death and the industrial board so decides, an appellate court in any state in which the general rule laid down above is in force cannot set aside the award or remand the case for further proceedings, even though the court believes that the weight of all the evidence in the case did not justify the decision.

Appeals from decisions of industrial boards and similar tribunals awarding compensation for death or disability attributed to cancer supposed to have resulted from industrial accidents seem to be, therefore—in most states, at least—hardly a satisfactory remedy for errors of judgment in making such awards. Rather it would be better, without denying that a cancer may be caused by a single injury, to organize our industrial boards so as to enable them better to weigh the medical evidence that comes before them. This suggestion should not be construed as a reflection in any way on the work

J. Spink, W. W., and Paine, J. R. *J. Immunol.* 38: 383 (May) 1940.

of such boards, for with the aid of their medical assistants their work is, it is believed, generally well done. As a further means of avoiding injustice in the making of awards, appellate courts should be vested with the right to set aside or to remand for further proceedings cases in which decisions seem to be clearly contrary to the weight of the entire evidence even though there may be some reasonable evidence to support them.

In any event, as long as the cause or causes of cancer are not known, as long as there may be an opinion among the medical profession at large to the effect that a single trauma may cause cancer and as long as physicians are willing to testify under oath that in their professional opinions a single trauma can cause and has caused cancer in the case before the industrial commission, industrial commissions cannot be blamed if sometimes they accept such evidence and grant awards accordingly.

In forming his opinion in a given case the physician should bear in mind the lack of definitive knowledge with regard to the relation of a single injury to the causation of cancer. Whether human cancer can be caused by a single accidental injury remains an open question. The results of clinical observations on the question are not conclusive. While authentic cases are recorded in which cancer arose at the site of an injury, the possibility that it was under way before the injury was received or that it developed independently of the injury cannot be excluded. That cancer can and does arise independently of injury and that single injuries become associated with cancer in one way or another only in extremely few cases will not be denied. As far as known, cancer in animals has not been produced experimentally by single mechanical injury.

Current Comment

PENICILLIN AS AN INHALANT

Under the auspices of the Long Island Biological Association Bryson, Lansome and Laskin¹ studied the behavior of penicillin as an inhalant. With a standard glass nebulizer a solution of the sodium salt of penicillin was readily nebulized for inhalation. Experiments on rabbits and on human beings demonstrated that in such form penicillin passed through the respiratory tract and appeared in the urine. In rabbits penicillin was recovered from the lung tissue after inhalation. As penicillin is bacteriostatic for pneumococci, streptococci and staphylococci in extremely high dilutions, its inhalation as an aerosol may be of advantage in the treatment of respiratory infections with these and perhaps also other bacteria. The results of further experiments will be of interest. The question also arises whether penicillin will be of value as an air disinfectant.

1. Bryson, V.; Lansome, E., and Laskin, L.: *Aerosolization of Penicillin Solutions*, *Science* **100**: 33 (July 14) 1944

CLEVELAND HEALTH MUSEUM

Many museums in the United States are contributing greatly to health education of the public. Some of these museums present their health exhibits in cooperation with local medical societies, while others operate under the guidance of physicians interested in health education. The Cleveland Health Museum has shown leadership in this field, and the medical profession has had a large part in its success. Organized under the auspices of the Cleveland Academy of Medicine to serve the people of Cleveland, the museum is rapidly becoming a national institution. Its exhibits have been used in seventeen states of the Union, as well as in Canada and Mexico. Health educators from various parts of the United States and from the Latin American countries have taken advantage of the intern training in visual health education offered by the museum staff. The appointment of a National Advisory Council indicates a further extension of these activities.

FOUR GENERATIONS OF SACROILIAC ARTHRITIS

Among disorders which involve the joints, the importance of heredity is recognized only in gout, rheumatic fever and probably certain degenerative forms of joint disease. An analysis of the exact mechanism played by genetics is difficult, however. Indeed, this has not yet been clarified even in gout and gouty arthritis, in which hereditary influences appear especially strong. Now Stauffer and Merrihew¹ show the pedigree of a form of arthritis that was present in a family in western New York State for at least four generations. The pedigree shows 22 affected persons in these four generations with a ratio of 21 arthritic persons to 12 normal (when siblings not old enough to have developed the disease were eliminated). All of the affected persons suffered pain in the sacroiliac region, and some also had sciatic pains and tingling and swelling of the extremities. The data for this study were collected by personal interview with affected and unaffected members of the family, most of whom were still living. The condition was encountered for the most part either in persons who were somewhat obese or who performed work of a manual nature. This suggests that the strain imposed by overweight or by the exertion from lifting may be direct factors in the onset of pain. The presence of excess uric acid in the urine in some persons, as well as symptoms of kidney disease, suggested to the writers that renal defects were present, but whether these were basic or merely symptomatic could not be decided. Possibly, these workers suggest, the basic action of the gene is to influence purine metabolism, and the renal disorder is secondary. If this should be the case, the disease in this family would appear to be more closely allied to the arthritis of gout than to any other form of joint disease. Whether this is correct or not, the writers feel confident from the similarity of symptoms in the afflicted members of the family reported that the disease is a genetic entity and the mechanism of inheritance is probably dominant.

1. Stauffer, James, and Merrihew, N. H.: *A Pedigree of Sacroiliac Arthritis*, *J. Heredity* **35**: 112 (April) 1944.

MEDICINE AND THE WAR

DEFERMENT OF PREMEDICAL AND MEDICAL STUDENTS

Following is the reply of Major General Hershey, Director of the Selective Service System, to a memorandum submitted to him by Senator Lucas of Illinois, and comments on General Hershey's letter by the Council on Medical Education and Hospitals of the American Medical Association:

NATIONAL HEADQUARTERS SELECTIVE SERVICE SYSTEM

21st Street and C Street NW.
Washington 25, D. C.

July 24, 1944.

*The Honorable Scott W. Lucas,
United States Senate.*

Dear Senator Lucas:

This will acknowledge your memorandum of July 15, 1944.

A survey made at this Headquarters indicates that there is undue concern over the future supply of doctors. The military forces demand medical attendance out of proportion to that demanded by the civilian population, and, during this period of emergency, civilian medical attendance, like everything else, must be limited to necessity. After the war there will be an adequate number of physicians, for there are now in the medical schools a number of students greater than the number which ordinarily study medicine in peacetime. In the accelerated program it is expected that all of these will finish their internships and be ready for practice by 1949. Our investigation revealed that we will then have not less than 193,000 doctors in the population as a whole. There will be one physician for approximately each 733 persons. The publications of the American Medical Association indicate that there was one doctor for each 765 persons in 1938, when the last figures were made public. Our figure for 1949 is based on a population estimation made at this Headquarters and by adding students now in college and to be graduated before 1949 to the American Medical Association's 1944 figures, less the expected attrition. The increased need for physicians is recognized, but it would seem that this excess over our past requirements would be adequate to meet future demands.

The concern is principally over the future shortage of doctors because it is alleged that no premedical students are being educated for the freshman classes to enter medicine in 1945. The question of the deferment of preprofessional students has been given much consideration. The armed forces have provided for the utilization of 53 per cent of the capacity of the classes in medical schools in 1945. This leaves only 47 per cent of the capacity which may be filled by civilian students. To find the number to prepare in premedicine and to fill these vacancies there is available a large number of men between 18 and 26 years of age found physically disqualified for any military service or physically qualified for limited military service only; women; soldiers discharged from the Army, and men over 30 years of age. Those men found physically disqualified for military service are frequently disqualified by reason of conditions which will not prevent them from being eligible for the study of a profession. It is incumbent upon the educational institutions to find in this group the men they want, and to offer them the inducement necessary to get them to study the professions.

Any additional students who are necessary to qualify for entrance into the medical, dental, osteopathic and veterinarian schools should be taken from the armed forces and from those who have spent at least two years in active service. The morale of the country will be definitely injured by continuation of a policy which will permit a boy becoming 18 to enter successively preprofessional and professional schools without fulfilling any military obligations. An application of this system

will be equally injurious to the medical, dental, osteopathic and veterinarian professions. This is true, first because men will become doctors, missing the major civic experience of this age for young men. The professions will be the poorer because they will find that they have doctors who are immature in years as well as in experience, and whose professional information was acquired in accelerated courses both in preprofessional schools and professional schools. This can be avoided by the selection of competent, mature, experienced men who have fulfilled their duties of citizenship to their country in war.

Dr. Willard C. Rappleye, Chairman of the Executive Council, Association of American Medical Colleges, Dr. A. W. Bryan, President, American Association of Dental Schools, and Mr. William N. Hodgkin, Chairman, Council on Dental Education, American Dental Association, have recommended to me that the Army and the Navy demobilize, either by furlough to the Reserve or by discharge, men selected because they have had at least two years of military service, have had preprofessional training to a degree which will make it possible in a nine month course to prepare them for entrance into the professional schools, and who are anxious to enter the professions under discussion. This plan was submitted to the Secretary of War and the Secretary of the Navy in an identical letter on June 6, 1944. A joint reply was received on June 29, 1944, indicating that the recommendation had not been favorably considered.

I am firmly of the opinion that the project submitted by Dr. Rappleye, Dr. Bryan and Mr. Hodgkin furnishes the only satisfactory solution to this problem if additional students are required for the preprofessional schools.

We are returning the attachment which accompanied your memorandum.

Sincerely Yours,
LEWIS B. HERSHEY,
Director.

Comment by Council on Medical Education and Hospitals

There are four major points made in General Hershey's letter which may be seriously questioned on the basis of information collected by the Council on Medical Education and Hospitals from the schools of medicine of this country:

1. "There is undue concern over the future supply of doctors." It is also stated that there will be more doctors available after the war than before the war. This is not all clear. In the first place, significant numbers of the physicians in the United States do not directly participate in providing medical care. These physicians are otherwise engaged or retired. Therefore physician-population ratios cannot be computed from the total number of physicians. The figures pertaining to increases or decreases in physicians available to civilians in the next few years are plain. Under the accelerated program there were 10,357 graduates from July 1, 1942 (when acceleration started in most schools) to June 30, 1944. Based on figures submitted by each school, it is estimated that an additional 9,844 will graduate from July 1, 1944 to June 30, 1945. This totals 20,201 graduates during a complete three calendar year cycle involving four graduating classes. If acceleration is continued even though admissions are made annually, there will be an additional approximately 20,000 graduates in the ensuing three year cycle from July 1, 1945 to June 30, 1948.

During this whole six year accelerated period there should be approximately 40,000 graduates. During the six prewar

years July 1, 1935 to June 30, 1941 there were 31,215 graduates. All other things being equal, these figures would indicate an increase in the physician population by 8,785 in 1948.

But all other things will not be equal. This entire surplus physician population would be absorbed by a standing army of 1,757,000 men at 5 medical officers per thousand men. Should the standing postwar navy require 5,000 physicians and the Veterans Administration 10,000, the physician population available to civilians would actually be reduced by 15,000 instead of increased.

In these calculations no account is taken of general population increases, fatalities and incapacitating injuries among medical officers in service, the current increased death rate among physicians, increasing demands of the civilian population for improved medical care, requirements for American physicians in the rehabilitation of liberated countries and the possible permanent damage of some of the "plant" of medical education through possible failure of some schools to continue operation with greatly reduced enrolments. Concern over the future supply of doctors is fully warranted under these conditions.

2. ". . . Forty-seven per cent of the capacity (of entering classes) . . . may be filled by civilian students (in 1945)." The deans of all medical schools were asked "How great a reduction do you estimate there might be in your 1945 entering classes if you are forced to select 41 to 47 per cent civilians, with no selective service deferments?" In response, the deans of only nine schools thought they might be able to fill civilian places under these conditions. Fifty-seven schools estimated reductions of from about 10 to over 40 per cent in freshman enrolments. There was an average reduction of 23 per cent for the sixty-six schools venturing estimates. The remaining eleven schools were unwilling or unable to estimate reduction which will occur.

It should also be recalled that the provisions of the current army appropriation bill, by abolishing further admissions of trainees to the A. S. T. premedical program, increase to 70 or 75 per cent the number of students which must be obtained from civilian sources in 1946.

3. Students are available from "a large number of men between 18 and 28 years of age found physically disqualified

. . . ; women; soldiers discharged from the Army and men over 30 years of age." These possible sources were taken into consideration in the estimates of reduced enrolments made in the preceding paragraphs. It is extremely doubtful whether qualified students in these categories are available in significant numbers at present unless admission standards are drastically reduced. There is no evidence of the existence of a large reserve pool of qualified women. Some physically disqualified and discharged men might be physically able to study and practice medicine, but these occupations are arduous, requiring vigorous health, and are not for the physically unfit. Many of those discharged are sufficiently unstable emotionally to prevent their becoming good doctors. Also there is no doubt that this group includes many men who have been previously rejected for admission to medical schools because they failed to meet admission standards, even though they may have pursued premedical studies before the war. While every favorable consideration should and will be given to medical school applications from veterans, it would serve neither the veteran nor the public to admit to medical schools men who do not possess the requisite physical, emotional, mental and other qualifications.

It will not meet the problem of obtaining students from these groups "to offer them the inducement necessary to study medicine." Students are impelled to study medicine through a long and complicated series of circumstances involving their whole past education, drives, capacities, emotional and social experiences, and not by offering special inducements.

4. "Additional students . . . should be taken from . . . those who have spent two years in active service." Much of what has been said above applies to this suggestion. Even if the Army and Navy had not rejected this plan, it probably would have resulted in many men being returned from the widespread theaters of military operations and even from this country, who would not possess the qualifications for the study of medicine. The commanding officers in Asia and Africa and Italy and France, or even the United States, with their many heavy responsibilities and inexperience in selection of medical students would be scarcely in a favorable position for collaborating with deans many miles away in assigning capable men to medical studies.

ARMY

PROCEDURES GIVEN FOR A. S. T. P. MEDICAL, DENTAL PROGRAMS

Procedures for disposal of certain enlisted personnel in the Army Specialized Training Medical Program necessitated by provisions of the Military Appropriations Act, 1945, have been announced by the War Department. The act, approved June 28, 1944, stipulated that none of the funds appropriated shall be used for training medical and premedical students unless they were in training prior to June 7, 1944, and such training was defrayed from 1944 appropriations.

At the same time, it was announced that the A. S. T. P. dental training program is being terminated at the close of the present semester except for those in the senior, or final, year, who will be permitted to complete the course and on graduation will be commissioned. This action is taken because the Army's requirements for dentists are now filled.

Those individuals now on active duty whose medical or premedical educational expenses were defrayed in whole or in part by the government under the A. S. T. P. program prior to June 7, 1944 will be continued in the medical program of the A. S. T. P. Those on active duty whose medical or premedical training was not defrayed either in whole or in part under the A. S. T. P. program prior to June 7, 1944 and who for that reason cannot be continued in the training program fall into two classes who will be disposed of as follows:

1. Those who have letters of acceptance and who would have entered an accredited medical school by Dec. 31, 1944. An individual in this group may elect to be discharged from the Army shortly before the entrance date of the class for

which he was accepted; or to be assigned to the Medical Department with no further A. S. T. P. medical training.

2. Those who do not have a letter of acceptance to an accredited medical school, for entrance by Dec. 31, 1944. These men will be continued on active duty and will not be eligible for A. S. T. P. medical training.

COMMANDING OFFICER AT HALLORAN APPOINTED BRIGADIER GENERAL

Halloran General Hospital, Staten Island, N. Y., was the recipient of one of the most signal honors in its distinguished history as an army hospital when Col. Ralph G. DeVoe, commanding, was promoted to Brigadier General May 24. The June 30 issue of the *Halloran Beacon*, Post Publication at Halloran General Hospital, is a tributary volume to Brigadier General DeVoe.

Brigadier General DeVoe graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1908 and from the Army Medical School in 1910. Before World War I broke out he was stationed in the Philippines, where he was promoted to captain in 1913. He became a first lieutenant in the Medical Reserve Corps in 1919 and was promoted to major on May 15, 1917. In September 1917 he became commanding officer of Base Hospital 34 in Nantes, France, and in November 1918 he was made commanding officer of the Hospital Center in Nantes. For this service he was awarded the decoration of Chevalier of the Legion of Honor by the French government, and on May 5, 1919 he became a colonel in the Medical Corps of the U. S. Army.

NAVY

HOSPITALIZATION OF DEPENDENTS
OF NAVAL PERSONNEL

Instructions have been issued by the Navy Department to govern the hospitalization of dependents of naval personnel in accordance with the act of May 10, 1943, which provided for expansion of facilities for hospitalization of dependents of naval and Marine Corps personnel. The instructions, dated June 10 but just published, define dependents as wife, unmarried dependent children under 21 years of age and mother and father if in fact dependent. Widows of deceased naval and marine personnel also are entitled to hospital care in the same manner as dependents. The Navy Department has authority to designate naval hospitals to which dependents shall be admitted and may remove such designation or add to the list of designated hospitals at any time. The commanding officer of the designated hospital shall determine the availability of accommodations for dependents and their need for hospitalization, reserving sufficient facilities for present and prospective naval personnel patient loads. Dependents shall be admitted only for acute medical and surgical conditions, exclusive of nervous, mental or contagious care. Dental treatment shall be administered only as an adjunct to inpatient hospital care and shall not include dental prosthesis or orthodontia. For each patient admitted and for each day in the hospital, the member of the Navy or Marine Corps concerned shall pay \$7.75. While the Coast Guard is operating as part of the Navy, dependents of Coast Guard personnel are entitled to hospitalization on the same basis as members of the other sea services.

NAVY AWARDS AND COMMENDATIONS

Captain Jesse D. Jewell

The Navy Cross was recently awarded to Capt. Jesse D. Jewell "for distinguished service in line of his profession, extraordinary courage and disregard of his own condition during an attack on the fleet in Pearl Harbor on Dec. 7, 1941. Although burned about the face and arms from fires nearby

his station on board the U. S. S. *California*, he continued at his post of duty and administered effective first aid." Dr. Jewell graduated from the University of Oregon Medical School in 1918 and entered the service in July 1921. He is now executive officer of the U. S. Naval Hospital at Corona, Calif.

PROMPT EVACUATION OF CASUALTIES
GREATEST SINGLE FACTOR IN
SAVING LIVES

Medical officials at Saipan, Marianas Islands, believe that the greatest single factor in saving the lives of wounded Marines on this island is the prompt evacuation of casualties to mobile field hospitals close behind the front. At one of these hospitals, with Comdr. R. L. Sharp, formerly of Morristown, N. J., in charge, it was revealed that fewer than 1 per cent of all casualties brought to the hospital prove fatal. "If a man is not killed instantly, and if he can be brought to us within an hour or so after being wounded we can almost guarantee to save his life," Dr. Sharp stated. The average time for evacuating a casualty is about an hour, he said. Ambulance jeeps go as close to the front as practical, and stretcher teams working in relays carry the wounded to the jeeps, and they are usually on the operating table within an hour after being picked up. Five doctors, including a surgeon, an orthopedic specialist and a dentist are on hand at all times. They are assisted by 75 Navy pharmacist's mates and 25 Marine orderlies. The hospital is equipped with 100 beds and a surgical ward which includes an x-ray machine and special operating instruments. It maintains its own sanitary cooking galley, so that special diets can be prepared when necessary. Patients are returned to the rear lines as quickly as practicable to make room for new casualties. "While the sulfonamide drugs have done wonders in preventing infection and plasma has performed miracles in overcoming shock, it is speedy evacuation that really saves lives," Dr. Sharp said. "Sulfonamides, plasma and evacuation," he emphasized, "are like the legs of an equilateral triangle, each dependent on the others."

MISCELLANEOUS

HOSPITALS NEEDING INTERNS
AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in *THE JOURNAL*, July 29, page 918)

CALIFORNIA

Santa Clara County Hospital, San Jose. Capacity, 470; admissions, 4,435. Dr. Henry E. Dahleen, Superintendent (resident—tuberculosis).

CONNECTICUT

The Meriden Hospital, Meriden. Capacity, 139, admissions, 3,802. Dr. Herbert T. Wagner, Medical Director (interns—October 1).
Waterbury Hospital, Waterbury. Capacity, 372, admissions, 8,144. Miss Aida E. Creer, R.N., Superintendent (resident—October 1).

LOUISIANA

T. H. Schumpert Memorial Hospital, Shreveport. Capacity, 120; admissions, 3,631. Sister Mary Celestine, Superintendent (intern).

MINNESOTA

University Hospitals, Minneapolis. Capacity, 450; admissions, 9,187. Mr. Ray M. Amberg, Superintendent (resident—orthopedics, August).

NEW YORK

Israel Zion Hospital, Brooklyn. Capacity, 380, admissions, 10,532. Dr. J. Prager, Executive Director (interns—October 1944, January 1945).
St. Mary's Hospital, Brooklyn. Capacity, 328, admissions, 5,004. Sister Mary Helen, Superintendent (interns).
Mount Vernon Hospital, Mount Vernon. Capacity, 254; admissions, 5,749. Mr. Arthur B. Solon, Superintendent (interns—October 1).

Beth David Hospital, New York. Capacity, 150, admissions, 3,985.

Mr. Harold Salkind, Executive Director (interns).

New York Post Graduate Medical School and Hospital, New York. Capacity, 409, admissions, 8,622. Dr. William B. Talbot, Medical Superintendent (resident—urology).

OKLAHOMA

St. John's Hospital, Tulsa. Capacity, 273, admissions, 10,327. Sister M. Olga, Superintendent (interns).

WEST VIRGINIA

St. Francis Hospital, Charleston. Capacity, 118, admissions, 4,923. Sister Mary Paul, Administrator (2 residents—mixed, October 1).

PHYSICIANS PHYSICALLY DISQUALIFIED
SINCE JULY 1943

An agreement has been reached with the Surgeons General of the Army and Navy that: 1. Physicians who have been physically disqualified for service in the armed forces since July 1943 and who are now serving in an essential capacity as an intern, resident, teacher or other hospital appointee will not be asked to submit to reexamination or to activate or reapply for a commission without a standard form 97 indicating that they are currently available. 2. Physicians physically disqualified for service in the armed forces and now in essential hospital positions who are being reconsidered for a commission in the armed forces will not be called to active duty until the expiration of their present obligation, provided form 218 for each physician is submitted covering such period of service.

ORGANIZATION SECTION

WASHINGTON LETTER

(From a Special Correspondent)

July 7, 1944.

American Academy of Pediatrics Withdraws Support from Children's Bureau

Further evidence of opposition to a trend toward socialized medicine was noted here in the action of the American Academy of Pediatrics in withdrawing its support from the Children's Bureau because its system of emergency maternity and infant care is an entering wedge for socialized medicine.

Last month a conference of child specialists and social workers here took a stand against the bureau's group care of children, asserting that group care was damaging to child welfare and actually more expensive than a foster family system of care which the conferees advocated. The academy announced its position in the *Journal of Pediatrics* as follows: "We feel the time has come when the academy and the pediatricians of the United States must withdraw their support from the Children's Bureau and use their influence as a group and as individuals to place all health activities under the Public Health Service."

Records of the Children's Bureau show that since the beginning of the program in March 1943 through May 1, 355,000 mothers and babies of servicemen received federal aid under the program for which Congress appropriated \$42,800,000. Entitled to care under the program are wives and infants of men in the four lowest paid grades of the armed forces.

The academy withdrew its support despite insistence of Dr. Martha M. Eliot, assistant chief and chief medical adviser of the bureau, that "EMIC will disappear when the war is over."

The pediatricians, in throwing their support from the Children's Bureau to the Public Health Service, are transferring it from an agency dominated by social workers to the medical authorities wielding balance of power at Public Health Service.

Dr. Eliot says in defense of the program that Congress brought it into existence as a wartime measure. She denied that the Children's Bureau intended to enter the practice of medicine after the war or to continue the emergency medical and infant care program in some other guise.

Pediatricians argue that the wartime program had made the Children's Bureau an active factor in the practice of medicine in this country "dictatorially regulating fees and conditions of practice on a federal basis." It quoted articles issued by the bureau as indicating that it is evident that "a free to all service, with full time salaried physicians, paid for directly from general taxes and controlled and directed by a federal bureau," is planned. The average EMIC payment is reported to be about \$84 a case.

National War on Tuberculosis

The ninety-two United States cities of 100,000 or more population will be major battlefields of the war on tuberculosis to be waged under the national tuberculosis control program, for which some \$10,000,000 was authorized. About one out of every three tuberculosis deaths occurs in these cities, and the average tuberculosis death rate in them is about one third higher than in smaller towns and rural areas.

In making this announcement, Dr. Herman E. Hilleboe, chief of the U. S. Public Health Service Tuberculosis Division, said that tabulations based on census figures for the 1939-1941 three year period show variations in tuberculosis death rates of cities ranging from as low as 15.6 per hundred thousand among white in Grand Rapids, Mich., to as high as 275.5 per hundred thousand among nonwhite persons in Newark, N. J. A survey showed tuberculosis to be three times as fatal to the nonwhite as to the white, according to death rate figures. Women living in country areas were said to be more susceptible to the disease, although death rates were higher among men in metropolitan than in rural areas.

Syphilitic Registrant Reclaimed by Treatment

Of more than a quarter million Selective Service registrants reclaimed for military duty after blood tests indicated that they were infected with syphilis, some 125,000 have already enlisted or have been inducted into the armed forces and 140,000 more are available unless otherwise disqualified. These figures, announced by the U. S. Public Health Service, are based on tabulations of data up to June 30, 1943 from twenty-two states, on 182,607 of the 720,000 registrants with evidence of syphilis. Symptomatic evidence of syphilis was reported as having been revealed among 720,000 of the first 15,000,000 registrants given blood tests for syphilis. The job of tracing, treating and inducting a large number of the infected registrants was accomplished by cooperation among Selective Service boards, state and local health departments, the Army and the Navy.

Nurse Corps Seeks 60,000 More Cadets

In calling for enrolment of at least 60,000 more cadets this year to meet increasing needs for hospital personnel, the U. S. Public Health Service paints a bright postwar future for girls joining the U. S. Cadet Nurse Corps. They will serve a vital war purpose in preventing closing of wards and curtailment of hospital services, with virtually all hospitals extremely short handed. After the war, many new fields are expected to be open to women in the nursing profession, the following being cited as possibilities: expansion of community health services, widening of group hospitalization and developments in industrial safety and first aid programs.

WOMAN'S AUXILIARY

Indiana

At a recent meeting of the Clark County Auxiliary, "Cancer Control" and the Wagner-Murray-Dingell bill were discussed.

Pennsylvania

The Philadelphia County auxiliary distributed 6,000 copies of the Wagner-Murray-Dingell bill arranged by Dr. Francis F. Borzell. During the present year the auxiliary gave \$1,300 to the Aid Association of the Philadelphia County Medical Society and \$200 to the benevolent fund of the state society. The fourteenth annual health institute was held in April in the Philadelphia County Medical Society building, with fifty-three organizations participating.

The Philadelphia auxiliary celebrated its nineteenth birthday April 14. Mrs. Lownes, the president, presented a memory book to the auxiliary containing the names of the past presi-

dents. Nine past presidents were present and received pins of service.

Texas

The Dallas County auxiliary held its annual guest day meeting April 5.

Mrs. T. H. Thompson, publicity chairman for the Texas auxiliary, states that each auxiliary in the state has had one or more programs on the "Wagner-Murray-Dingell bill to show the evils of socialized medicine."

Wisconsin

One hundred members of the Milwaukee auxiliary attended the March meeting. Dr. L. J. Van Hecke spoke of the work done in cancer control by the Woman's Field Army, and Dr. E. H. Ryncarson of the Mayo Clinic discussed "Obesity, the Unpopular Subject."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

The Doctor Speaks to the Attorney.—A joint committee composed of three members of the Los Angeles Bar Association and three members of the Los Angeles County Medical Association are arranging a program on the theme "The Doctor Speaks to the Attorney." The series of lectures will begin in September and be concluded in December, covering various medicolegal problems with the medical factors emphasized from the point of view of different specialists. Legal members of the arranging committee are Messrs. F. Murray Keslar, John P. McGinley and Elbert H. Tilson; medical members are Drs. Fred B. Clarke, Long Beach, John Severy Hibben, Pasadena, and Louis J. Regan.

Cancer Prevention Clinic.—A clinic has been opened in Los Angeles to be known as the Cancer Prevention Society. It will be staffed by the Medical Women's Society of Los Angeles County on a voluntary basis and work in cooperation with the Women's Field Army. An announcement indicates that the clinic will be devoted to research. It was stated that "500 non-ailing women" will be asked to sign up for two complete physical examinations a year. No treatment will be given at the clinic, but if a woman is found to have any disease she will be referred to her family physician. Dr. Elizabeth Mason Hohl, educational director of the Women's Field Army in Los Angeles, is in charge of the clinic.

DELAWARE

New Health Commissioner of Wilmington.—Dr. Arthur Parker Hitchens, professor of public health and preventive medicine, University of Pennsylvania School of Medicine, Philadelphia, has been appointed health commissioner of Wilmington, according to *Philadelphia Medicine*.

ILLINOIS

Changes in Health Officers.—Dr. Samuel N. Mallison has been appointed to the new position of superintendent of health of the city of Decatur. Dr. Mallison will be in charge of the public health work of the city and assume much of the work formerly handled by Dr. Pierre A. Steele, city commissioner of public health and safety.

Chicago

Peoples Hospital Closed.—The Chicago Board of Health on July 18 closed the Peoples Hospital because of its insanitary condition and faulty record keeping, newspapers report. It was stated that the procedure was carried out in connection with an investigation by the state's attorney's office of an alleged adoption racket.

Changes on the Faculty at Illinois.—Dr. Raymond B. Allen, dean, University of Illinois College of Medicine, announced July 31 a number of changes on the medical faculty, among others, effective September 1:

Dr. Julius Hays Hess, who has been a member of the faculty for thirty years, retiring on account of age, as professor and head of the department of pediatrics. He will carry the title professor emeritus.

Dr. Henry George Poncher promoted to professor and head of the department of pediatrics to succeed Dr. Hess.

Dr. Milan Václav Novák to professor and head of the department of bacteriology and public health.

Dr. Yngve Joranson to associate professor emeritus, department of anatomy.

Dr. Aaron Arkin to professor, department of medicine (Rush).

Dr. Richard Leos Jenkins to acting head and associate professor of psychiatry.

Chester William Darrow, Ph.D., to associate professor, department of criminology, social hygiene and medical jurisprudence.

Dr. Norris Julius Heckel, to associate professor, department of surgery.

Dr. John Michael Dorsey to assistant professor, department of surgery (Rush).

Dr. Noah D. Fabricant to assistant professor, department of laryngology, rhinology and otology.

Dr. Edward A. Piszczek to assistant professor, department of bacteriology and public health.

James Clarence Plagge, Ph.D., to assistant professor, department of anatomy.

Dr. John Van Prohaska to assistant professor, department of surgery.

Dr. Anita E. Rapoport to associate and associate anesthetist, department of surgery and Research and Educational Hospital.

Dr. Boris S. Ury to associate, department of psychiatry.

KANSAS

Personal.—Dr. Chester E. Joss, Topeka, was elected president of the Kansas State Board of Medical Registration and Examination at its meeting in Topeka, June 8, succeeding Dr. Mirl C. Ruble, Parsons, who continues as a member of the board.

Special Society Elections.—Paul Haney, director of the division of sanitation of the Kansas State Board of Health, was chosen president-elect of the Kansas Public Health Association at its annual meeting in Topeka, June 6-8. Leon R. Kramer, D.D.S., director of the dental hygiene division of the state board of health, was installed as president and Dr. James E. Wolfe, Wichita, was named vice president. Miss Jane Taylor, venereal disease control nurse of the state board, is the secretary.—Dr. Clay E. Coburn, Kansas City, was chosen president of the Kansas Tuberculosis and Health Association at its annual meeting, June 6-8, in Topeka. Drs. Frank A. Trump, Ottawa, and Mrs. Mary C. Bure, R.N., Kansas City, are vice presidents. Theo C. Mueller, Topeka, is the treasurer, and Dr. Charles H. Lerrigo the executive secretary. All officers were reelected with the exception of Mrs. Bure.

KENTUCKY

Director of Tuberculosis Control Named.—Dr. Russel E. Teague, Louisville, has been appointed director of tuberculosis control for the Kentucky State Department of Health, succeeding Dr. John B. Floyd, Louisville, who resigned to become medical superintendent of a coal company at Stone, it is reported. Dr. Teague will be succeeded in his position as director of venereal disease control by Dr. Robert H. English, Hopkinsville, acting director of the Christian County department of health.

Silicosis Examining Board Created.—The recent establishment of a permanent medical examining board, paid by the state, to examine all claimants alleged to have become disabled by reason of silicosis has been announced. The board consists of two radiologists and one chest physician, namely Drs. Isaac T. Fugate, Louisville, for a three year term, Charles C. McCoy, Louisville, for two years and Thomas Atchison Frazer, Marion, for one year. The silicosis law in Kentucky was rewritten after a survey by the state department of health, representatives of the Associated Industries of Kentucky, representatives of the two national unions, the insurance carriers and employers groups. The new law is just now going into effect, according to Dr. Walter E. Doyle, Louisville, director of the state bureau of industrial hygiene, July 27. All cases will be referred first of all to the examining board for diagnosis. The results of the board will be referred back to the workmen's compensation board, which operates under the department of industrial relations for action. The law permits a finding of partial permanent disability and also contains a "second injury clause."

MAINE

State Medical Election.—Dr. Adam P. Leighton, Portland, was chosen president-elect of the Maine Medical Association at its annual meeting in Rockland, June 26, and Dr. Raymond V. N. Bliss, Blue Hill, was inducted into the presidency. Dr. Frederick R. Carter, Portland, was reelected secretary.

MICHIGAN

Dr. Ryan Placed in Charge of Rapid Treatment Center.—Dr. Nelson W. Ryan has been assigned by the U. S. Public Health Service to the Michigan Department of Health to be in charge of the venereal disease rapid treatment center opened in June in Ann Arbor (*THE JOURNAL*, May 20, p. 220). Buildings for the center have been made available at the University Hospital. Dr. Ryan, who was in charge of the first rapid treatment center when it opened in South Carolina, has been associated with Dr. Udo J. Wile, professor of dermatology and syphilology at the University of Michigan Medical School, Ann Arbor.

Personal.—Dr. Henri Belanger was honored at a dinner, June 7, by friends and colleagues in recognition of his completion of fifty years in the practice of medicine, all of which time was spent in River Rouge. Dr. Belanger was presented with a gold writing set.—Dr. Edward Sawbridge, who began the practice of medicine at Stephenson in 1883, has retired as agent for the Michigan Bell Telephone Company at Stephenson, a connection he had held since 1890. Newspapers reported

that it was in Dr. Sawbridge's drug store in 1890 that the first telephone instrument was installed at Stephenson.—Dr. and Mrs. David H. O'Donnell, Detroit, celebrated their golden wedding anniversary, June 21.—Dr. Clark D. Brooks, a member of the Detroit Board of Education since 1939, has been elected president of the board.

Typhoid Carriers.—The Michigan Department of Health, Lansing, has under its supervision 290 typhoid carriers. In 1943 11 carriers were released from the department's supervision. One recovered spontaneously, 1 recovered following removal of the gallbladder, 3 moved to other states and 6 died. During 1943 21 new typhoid carriers were identified and placed under supervision; 19 of these were discovered as the source of new cases, while the other 2 were found through convalescent follow-up. No typhoid patient is released from supervision until three specimens, taken a week apart, are free from typhoid germs. Persons who continue to have the germs for a year are considered chronic carriers. In ten years in Michigan only 3 chronic carriers cleared up spontaneously.

Medicine in Survey of Public Opinion.—The Michigan Health Council is conducting a survey of public opinion in Michigan to obtain the attitude of the public toward the medical profession and hospitals, the cost of medical and hospital care, the attitude of the public regarding prepayment health plans under the auspices of professional groups, government or other agencies, and other related matters. The results will be used to formulate a program to educate the public in the type of service being provided by the doctors and doctors' agencies within the state. The Michigan Health Council was organized at a meeting in Mackinac Island, July 16-17, 1943 to act as a clearing house on matters of mutual interest for the Michigan State Medical Society, the Michigan Hospital Association, the Michigan Medical Service and the Michigan Hospital Service. Dr. Andrew S. Brunk, Detroit, is president of the council and Gordon Davis, Detroit, formerly science editor of the *Cleveland Press* and currently in charge of public relations for the Michigan Hospital Service, is the executive secretary. The council has been incorporated and has opened offices at 1402 Washington Boulevard, Detroit.

Proposed School of Industrial Health.—One of the units in the Medical Sciences Center now being developed in connection with the Wayne University College of Medicine, Detroit (*THE JOURNAL*, Oct. 23, 1943, p. 496), is the construction of a School of Industrial Health, it was revealed recently. While the proposed school of industrial health will confine itself to teaching and research, industrial plants will be asked to help support the program on a consultation fee basis. The school will be prepared to undertake certain research projects having to do with industry, but it will be expected that commercial firms asking for this service will finance the costs. The Medical Science Center of Wayne University is a nonprofit corporation organized under the laws of Michigan. Its object is to raise money to build and equip units of the center and to finance programs therein. The physical equipment will become the property of Wayne University, which will operate it. Full authority over curriculum, faculty appointments and program will be retained by the Wayne University administration and the board of education.

MINNESOTA

Medical Art Show.—In a news item in *THE JOURNAL*, July 22, page 859, describing the medical art display of the Minneapolis Public Library, the name of the late Dr. Harry B. Wilmer, Philadelphia, was used instead of that of Dr. Harry A. Wilmer, Baltimore. The names of Capt. Frank H. Netter, M. C., and Mr. Willard C. Shepard were inadvertently omitted from the names of the exhibitors.

MISSISSIPPI

Medical Women Organized.—At a recent meeting in Jackson a group of women organized and chose Dr. Virginia Small, Greenville, as president. The name selected for the new group, which is open to white women in Mississippi holding the degree of doctor of medicine, has been unofficially designated the Medical Women's Club of Mississippi. Other officers of the group include Drs. Virginia F. S. Howard, Jackson, vice president, Margaret Roe Caraway, Gulfport, secretary, and Estelle A. Magiera, Jackson, treasurer. It is planned to hold meetings during the annual session of the Mississippi State Medical Association. The new group hopes to promote a closer association of women physicians of the state socially and professionally.

MISSOURI

New Medical School Librarian.—William A. Fitzgerald, Ph.D., librarian of Brooklyn Preparatory School, Brooklyn, N. Y., has been named to a similar position at St. Louis University School of Medicine, St. Louis, newspapers report. Dr. Fitzgerald has specialized in the history of library science and taught library and social sciences in a number of schools.

Narcotic Violation.—Dr. Joseph A. McNearney, St. Louis, who was arrested at Lexington, Ky., pleaded guilty in the U. S. District Court at Lexington on June 13 to a violation of section 72, title 18, U. S. Code (forging the name of another physician to a narcotic prescription). Dr. McNearney was given a suspended sentence and placed on probation for five years, according to information from the U. S. Bureau of Narcotics.

PENNSYLVANIA

Dr. Sandy Resigns from Mental Health Bureau.—Dr. William C. Sandy, Harrisburg, since 1921 director of the mental health bureau of the Pennsylvania Department of Welfare, has resigned. Dr. Sandy was for a number of years secretary of the American Psychiatric Association.

Dr. Bull Resigns at Lehigh University.—Dr. Raymond C. Bull, organizer and director of the student health service at Lehigh University, Bethlehem, for twenty-one years, has resigned, effective July 1, because of ill health. Dr. Carl O. Keck, assistant to Dr. Bull since 1939, has been named director of the health service.

Philadelphia

Portrait of Dean Pepper.—On July 3 an oil portrait of Dr. William Pepper, dean of the University of Pennsylvania School of Medicine, was unveiled at the Free Library of Philadelphia. Dr. Pepper was president of the board of trustees of the library from 1939 to 1943.

Dr. Babcock Honored.—Dr. William Wayne Babcock, professor emeritus of surgery, Temple University School of Medicine, was recently presented with the Russell H. Conwell Award for "untiring devotion to the advancement of Temple University." The award is a large framed scroll.

Dr. Barnes Heads Biochemical Research at Sharp and Dohme.—Richard H. Barnes, Ph.D., assistant professor of physiologic chemistry, University of Minnesota, Minneapolis, has been appointed head of the department of biochemical research of Sharp and Dohme, Glenolden. He succeeds Dr. Leslie Earle Arnow, who was recently appointed director of research of the company (*THE JOURNAL*, June 3, p. 369).

Health Institute.—The Philadelphia County Medical Society sponsored a health institute at the board of public education, June 26-28. Included among the speakers were:

Dr. Edmund B. Spaeth, Conservation of Sight of School Children.
Dr. Carroll S. Wright, Contagious Skin Conditions Among School Children.
Dr. Frederick H. Allen, Psychiatric Services in the School System.
Dr. Waldo E. Nelson, A Tuberculosis Program in the School System.
Dr. Winthrop M. Phelps, Therapeutics of Cerebrospinal Palsy.
Lieut. Comdr. Joseph F. Hughes (MC), Electroencephalography.

Personal.—Dr. Alfred C. LaBocceccia has been appointed superintendent and medical director at the Philadelphia Hospital for Contagious Diseases.—Dr. Harriet L. Hartley, chief of the division of child hygiene, department of health, was recently presented with an award of merit by the Pennsylvania Public Health Association in recognition of her services in the field of public health.—Dr. Charles A. E. Codman has been appointed honorary librarian of the Philadelphia County Medical Society.

Laboratory Named for Levi Hammond.—A laboratory of comparative anatomy in the Pfahler Hall of Science has been named the Levi J. Hammond Laboratory of Comparative Anatomy in honor of the late Dr. Levi J. Hammond. A portrait of Dr. Hammond by Susan has been hung in the main hall. It was unveiled by Mrs. Hammond. Dr. Hammond, formerly president of the Philadelphia County Medical Society, was for many years instructor in aural surgery at the University of Pennsylvania School of Medicine. He died in 1929.

Pittsburgh

George Harris Resigns as Executive Secretary.—Dr. George R. Harris, for nine years executive secretary of the Allegheny County Medical Society, retired June 20 when his term as elected secretary of the society expired. Dr. Norman C. Ochsenhirt was to succeed Dr. Harris in the elective position of secretary, but at the time of this report no one had been named to fill the post of executive secretary.

District Meeting.—The tenth and eleventh councilor districts of the Medical Society of the State of Pennsylvania held a meeting in Pittsburgh, July 20. Among the speakers were

Dr. Francis F. Borzell, Philadelphia, Aims of the Council on Medical Service and Public Relations
Col. Cleon J. Gentzkow, M. C., Public Health Aspects of Tropical Diseases
Capt. William Blair Mosser (MC), Naval Surgery as of Today
Dr. Lewis T. Buckman, Wilkes Barre, Balanced Personality
Dr. Augustus S. Kech, Altoona, A Challenge to Every Physician
Dr. Paul R. Correll, Easton, The Pennsylvania Medical Practice Act

A feature of the session was the presentation of testimonials to the following members, who have completed fifty years in the practice of medicine: Drs. William Cullen Bryant, Pittsburgh, Herbert P. Crawford, Crafton, George W. Ely, Pittsburgh, William S. Langfitt, Pittsburgh, John F. McNeely, Munhall, Jesse R. Cooper, New Castle, Charles M. Iseman, Ellwood City, John Foster, New Castle, Elizabeth M. McLaughry, New Wilmington, William A. Marsh, Mount Pleasant, Nathaniel E. Sisley, Scottsdale, Charles E. Snyder, Greensburg, and Frank H. Underwood, Monongahela.

TEXAS

University Acquires Convalescent Home.—Mr. and Mrs. Maco Stewart, San Antonio and Galveston, have given their Galveston Island estate to the University of Texas Medical Branch for use as a convalescent home for children. The estate has been named the Margie B. Stewart Convalescent Home for Children. Dr. Arild E. Hansen, professor of pediatrics at the medical school, will direct the medical work at the home and Dr. George W. N. Egge, clinical professor of orthopedic surgery, the surgical and physical therapy activities. Facilities are available for handling between 30 and 50 convalescent children, with outdoor fresh and salt water pools and special facilities for physical and occupational therapy. The project will comprise a part of the child health program of the University of Texas Medical Branch as supported by the William Buchanan Foundation of Texarkana (THE JOURNAL, February 19, p. 520).

VIRGINIA

Dr. Riggan Reappointed State Health Officer.—Dr. Irl C. Riggan, state health commissioner since 1937, has been reappointed to the office for another four year term.

Robert Hudgens Named Medical Director at Virginia Medical College.—Mr. Robert Smith Hudgens, superintendent, Emory University Hospital, Emory University, Ga., has been appointed medical director of the Medical College of Virginia, Hospital Division, Richmond, effective August 1. He succeeds Dr. Lewis E. Jarrett, who accepted a position as superintendent of Toussaint Infirmary, New Orleans (THE JOURNAL, May 27, p. 297).

WEST VIRGINIA

Elkins Gives Service in Tornado.—The Davis Memorial Hospital and the staff of the Golden Clinic, Elkins, gave complete services, free of charge including X-rays, medication and crutches, to victims of the recent tornado. The OCD blood bank in the hospital served all calls. It is reported that the emergency U. S. Public Health unit sent out a detachment to the Montrose area to function there. Credit is given to Col. O. I. Holeman, commandant of the West Virginia Maneuver Area, for the cooperation he gave during the catastrophe, setting up emergency stations and turning his station hospital to civilian use as necessary while corps men of the medical division assisted in the emergency.

Changes in Health Officers.—Dr. James A. Dolce, health commissioner at Wilmington, Del., has been appointed county health officer at Fairmont, succeeding Dr. Joseph W. Davis, who resigned to join the Baltimore City Health Department. —Dr. Herbert Duncan, health officer for district number 2 at Lewisburg, has resigned to accept a residency in eye, ear, nose and throat at the Nashville General Hospital, Nashville, Tenn. Dr. Albert M. Price, Charleston, has resigned as health officer of Kanawha County to enter private practice. Dr. Price was formerly director of the state division of communicable diseases. Dr. Walter J. Riley, health officer for district number 4 at Weston, has been given an indefinite leave of absence on account of ill health.

Activities in State Health Department.—A five member advisory committee, composed of directors of various bureaus, has been set up in the state department of health by Dr. John E. Offner, Weston, state health commissioner. Members who were selected on the basis of seniority will consider personnel problems, interdivisional relationships, intradepartmental poli-

cies, legislative needs, budgeting, departmental morale and merit system qualifications. Members of the committee include J. B. Harrington, B. E., Miss Katherine E. Cox, Miss Laurene C. Fisher, R. N., Dr. Norman G. Angstadt and Dr. Charles S. McKinley. —Miss Evelyn Yokum Fortney, vocational home economics teacher at the Shinnston High School, Harrison County, for the past five years, has been appointed nutrition consultant in the division of maternal and child hygiene of the state department of health.

GENERAL

Special Society Election.—Dr. Edward A. Schumann, Philadelphia, was chosen president of the American Gynecological Society at its meeting in Hershey, Pa., in June. Drs. Norris W. Vau, Philadelphia, and James C. Masson, Rochester, Minn., are vice presidents, Dr. Howard C. Taylor Jr., New York, secretary, and Dr. Philip F. Williams, Philadelphia, treasurer.

Officers of Board of Pathology.—Dr. Arthur H. Sanford, Rochester, Minn., was reelected president of the American Board of Pathology at its meeting, June 7-8, in Chicago, and Drs. Frederick H. Lamb, Davenport, Iowa, and Frank W. Hartman, Detroit, were reelected vice president and secretary-treasurer, respectively. Dr. Robert A. Moore, St. Louis, was appointed assistant secretary. Drs. Howard T. Karsner, Cleveland, Alvin G. Foord, Pasadena, Calif., and Roy R. Kracke, Birmingham, Ala., have finished their two terms of service with the board and have been succeeded by Drs. Shields Warren, Boston, James B. McNaught, San Francisco, and Frederick William Sunderman, Philadelphia. Dr. Nathan Chandler Foot, New York, was elected to succeed himself.

Program on Premedical Education.—On September 14, during the annual meeting of the American Association for the Advancement of Science in Cleveland, Alpha Epsilon Delta, a national honorary premedical fraternity, will hold a special program on premedical education. Among the speakers will be Dr. Victor Johnson, Secretary, Council on Medical Education and Hospitals of the American Medical Association, Carlos I. Reed, Ph.D., professor of physiology, University of Illinois College of Medicine, and Hugh E. Scatterfield, Ph.D., premedical adviser, Ohio State University, Columbus, and president of Alpha Epsilon Delta. An informal round table discussion of problems and questions from the audience will follow the talks. It is hoped that this meeting will be the beginning of similar sessions held at various national and regional meetings throughout the country.

Meeting of Obstetricians and Gynecologists.—The American Association of Obstetricians, Gynecologists and Abdominal Surgeons will hold its annual convention at the Homestead, Hot Springs, Va., September 7-9, under the presidency of Dr. Willard R. Cooke, Galveston, Texas. The preliminary program lists the following speakers:

Dr. W. Wayne Babcock, Philadelphia, An Operation for Exstrophy of the Bladder—report of 5 cases
Dr. William S. Bainbridge, New York, Surgery of Uterine Cancer
Dr. Bender Z. Cashman, Pittsburgh, Hysterectomy with Preservation of Ovarian Tissue in the Treatment of Endometriosis
Dr. David P. Findley, Omaha, End Results in the Treatment of Cervicitis
Dr. James R. Goodall, Montreal, Canada, The Defensive Mechanism of the Uterus
Dr. Robert A. Johnston, Houston, Texas, A Critical Analysis of Twenty Two Years Experience with Cesarean Section
Dr. Frederick J. Lynch, Boston, Rupture of the Pregnant Uterus
Dr. Joe V. Meigs, Boston, The Wertheim Operation for Cancer of the Cervix
Drs. William F. Mengert, Dallas, Texas, and Charles Rodney Stoltz, Iowa City, Total Abdominal Hysterectomy in a Series of 1,921 Patients
Dr. James R. Miller, Hartford, Conn., Repair of Prolapse of the Urethra
Dr. Russell J. Moe, Duluth, Minn., Duplication of Right Kidney Pelvis and Ureter with an Extracapsular Opening
Drs. Robert D. Mussey and Charles R. Mayo, Rochester, Minn., Pregnancy Following Myomectomy
Dr. James F. Norton, Jersey City, N. J., Maternal Mortality—An Analysis Based on More Than Sixty Thousand Births
Dr. Milton G. Potter, Buffalo, Observations of Breech Deliveries in a General Hospital
Dr. Jean P. Pratt, Detroit, Sex Precocity—Report of 4 Cases
Dr. James K. Quigley, Rochester, N. Y., Habitual Abortion
Dr. William A. Scott, Toronto, Canada, Surgical Complications of Pregnancy and Labor

Dr. Cooke will deliver his presidential address on "The Differential Psychology of the American Woman." Dr. Abraham R. Abarbanel, Washington, D. C., will present "The Spasmodic Action of Magnesium Ions on the Tetanically Contracting Human Gravid Uterus," the paper that has been awarded the annual Foundation Prize of the association.

Congress of Physical Therapy.—The American Congress of Physical Therapy will hold its twenty-third annual session at the Hotel Statler, Cleveland, September 6-9, under the presidency of Dr Kristian G Hansson, New York. The program will include an instruction course and, in addition, the following will speak, among others:

Dr Miletus B Jarman, Hot Springs, Va., Mineral Water Therapy
An Appraisal
Drs Louis J Regan, Los Angeles and John S Hubben, Pasadena, Calif., Medical Legal Aspects of Physical Medicine
Dr Carl M Peterson, Secretary Council on Industrial Health, American Medical Association, Chicago, Industrial Rehabilitation
Dr Frank H Ewerhardt, St Louis, A Plea for a More Uniform Terminology
Dr Miland E Knapp, Minneapolis, Education of the Medical Student in Physical Therapy
Basil O Connor, LL D, New York, The Work of the National Foundation for Infantile Paralysis
Dr Donald J Erickson, Rochester, Minn., Physical Therapy in Geriatrics
Capt Charles F Behrens (MC), Activities of the Committee on Rehabilitation of the Baruch Committee
Dr Robert F Dow, Battle Creek, Mich., Treatment of Military Amputees
Dr Arthur L Watkins and Mary A B Brazier, Ph D, Boston, Studies on Muscle Innervation
Dr Robert L Bennett Jr, Warm Springs, Ga., Recognition and Treatment of Common Deformities Found in Convalescent Poliomyelitis

The Ohio chapter of the American Physiotherapy Association will offer a special presentation Thursday. Dr John S Coulter, Chicago, will discuss "A Rehabilitation Center for the Injured Worker" and Catherine Graham, chief physical therapy technician, Mount Sinai Hospital, Cleveland, will give a practical demonstration in walking reeducation. Guest speakers at the annual dinner Thursday evening will be Major General George F Lull, deputy surgeon general, Major General David N W Grant, air surgeon, and Rear Admiral Luther Sheldon Jr (MC). Groups meeting during the annual congress will include the Society of Physical Therapy Physicians, September 6, and the American Registry of Physical Therapy Technicians, September 7.

LATIN AMERICA

Health Activities in Latin America—*Shipments of Penicillin*—Shipments of penicillin for treatment of venereal diseases in Puerto Rico have been entirely stopped, according to Dr Ernesto Quintero, San Juan, health department specialist. The report announcing this did not give a reason for the cessation of the shipments.

San Juan Divided Into Zones for Sanitary Improvements—Dr Antonio Fernos-Isern, commissioner of health, plans to divide the San Juan area into eighteen zones, each zone to be supervised by a local inspector to be in charge of inspecting milk, food and drugs and check up on all sanitary regulations. The plan is a part of a program to increase the efficiency in inspecting and enforcing sanitary regulations in the metropolitan area of San Juan.

Nutrition for Crippled Children—Crippled children of Puerto Rico are receiving special treatment and diets free through district hospitals and visiting nurse service, it was reported recently.

Society News—The first Congress of the Mexican Faculties and Schools of Medicine was held in Monterrey City, April 2-7. Resolutions were adopted to permit local government hospitals at the disposal of the medical schools to establish a system of exchange professors at the schools and to establish requirements of the faculties to assist in their recognition as constituents of the National Federation of Medicine, according to *Medicina*.—The first National Congress of Pediatrics of Peru convened in Montevideo, July 4.—The fifth Cuban congress against tuberculosis was held in Santiago, Cuba, in May under the auspices of the National Council of Tuberculosis and the Cuban Society of Phthisiology.

Health in Puerto Rico—In 1942 there were 32,220 deaths reported for Puerto Rico, giving a crude death rate of 161 per thousand of estimated population as compared with the rate of 186 in 1941. The 1942 rate was the lowest ever reported since the possession was admitted to the registration area in 1932. The seven principal causes of death and their death rates per hundred thousand of estimated population were diarrhea, enteritis and ulceration of the intestine 321, tuberculosis 237.3, pneumonia (all forms) and influenza 143.2, diseases of the heart 108.5, nephritis 95.9, malaria 94.9 and cancer and other malignant tumors 52. This group accounted for 65.6 per cent of all deaths. Eighty-six per cent of the deaths from diarrhea, enteritis and ulceration of the intestine were of infants and children or preschool age. A report from the U S Bureau of Census emphasizes the relatively large number of suicides, particularly in the age group from 15 to 24, in which 183 were recorded, giving a rate of 7. The general

rate was 24.5 per hundred thousand of population. The report says that the suicide problem in Puerto Rico appears to be of about the same order of magnitude as deaths from motor vehicle accidents in the United States.

Scholarships—Applications for scholarships to study poliomyelitis, cancer and leprosy in the United States through the Alfredo Hirsch Foundation, Buenos Aires, are now being accepted from Argentine physicians. The scholarships are awarded every two years through the Academia Nacional de Medicina of Buenos Aires, Las Heras esq. Coronel Diaz, Buenos Aires, from which additional information may be obtained.

Anniversary of Medical School—On May 10 the Faculty of Medicine of the University of La Plata, La Plata City, Argentina, observed its twenty-fifth anniversary. The school now has about 1,476 students and graduates about 90 annually.

Personal—Dr Dennis F Reeder, Panama City, has been elected president of the Panama Rotary Club for the ensuing year.—Dr Fernando E Tricerrri, chief of the department of thoracic surgery of the Rosario University Medical School, Argentina, has gone to the United States to study surgery under a Commonwealth Fund scholarship.—Dr Felipe F Carranza was recently appointed a corresponding member of the Academia de Cirurgia of Rio de Janeiro.

FOREIGN

Sir John Ledingham Retires as Director of Lister Institute—Sir John C G Ledingham, who retired as director of the Lister Institute of Preventive Medicine, London, has been made professor emeritus of the institute.

Memorial to Cecil Rowntree—Plans are under way to establish a Cecil Rowntree Medical and Surgical Reference Library at the Queen Victoria Hospital, East Grinstead, in memory of Dr Rowntree, who was honorary surgeon to the hospital for about twenty-five years. According to the *British Medical Journal*, gifts of books or funds will be appreciated to help forward the project.

Personal—In the king's honor list recently knighthood was bestowed on Dr Alexander Fleming, London, Howard W Florey, Ph D, Oxford, and Percival Hartley, D Sc, Hampstead.—Dr Harry L Parker, a native of Ireland who graduated at the University of Dublin School of Physics, Trinity College, Dublin, in 1918 and who was a member of the Mayo clinic staff from 1925 to 1934, has been elected president of the Royal Academy of Medicine in Ireland and of the Dublin University Biological Association.

Medical Nobel Institute for Research—The Royal Caroline Institute, Stockholm, in charge of the Nobel Fund for Medicine, has decided to build a Medical Nobel Institute for research in anatomy, biochemistry and physiology, according to *Science*. The institute will consist of three departments in one building to be erected on the premises of the new medical center at Norrbacka in the northwest region of the city. The Biochemical Nobel Institute was founded in 1937 and is directed by Dr Axel Hugo T Theorell. The physiologic department will be a Neurophysiological Research Laboratory, privately endowed in 1940 for Professor Ragnar Granit, who will also be in charge of the new institute. The anatomic department will be associated with a new chair in cell research to be founded for Dr Torbjorn Caspersson.

Russia Provides Premium for Motherhood—An Associated Press Dispatch from Moscow July 9 announced provisions by the supreme soviet to encourage large families ranging from up to 5,000 rubles, or \$950, at birth of an eleventh child, plus a monthly payment of 300 rubles, or \$57. It was reported that state aid begins with a grant of 400 rubles (\$76) at birth of a third child. A fourth child brings \$247 and \$15.20 per month, with lump sums and monthly aid increasing thereafter. Monthly payments continue until children are 5 years old. A decree issued by the soviet also created honors for mothers, the highest one, "mother heroine," for women rearing 10 or more children, revised family taxes to encourage births, tightened laws against abortionists, liberalized aid for pregnant women and ordered increased production of baby clothes. The order of "Mother's Glory" of first second and third class will go to women who rear 9, 8 and 7 children. The medal of motherhood first and second class will be presented to women rearing 6 and 5 children. New exemptions for pregnant women include the extension of their leave from work from 63 to 77 days, 35 before birth and 42 afterward. Mothers whose marriages are not registered will receive state relief until the children are 12 years old, and if they want to send the child or children to a state boarding school this will be done at state expense.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 8, 1944.

Pathology and the National Health Service

A group of pathologists under the chairmanship of Prof. S. P. Bedson have drawn up a statement on pathology in relation to the proposed national health service—a subject which has not received attention previously. They advocate the closest relationship between academic and applied pathology. The former, mainly concerned with teaching and research, must be centered in the medical departments of the universities, the group believes, but should not be confined to them. The efficiency of laboratories concerned chiefly with routine work can be ensured only if their staffs have an opportunity for independent investigations and benefit by the stimulus of teaching. Hence the staffing of hospital laboratories must be adequate to afford the pathologists time to make use of these opportunities as they arise. Clinical pathology is an important part of a general hospital service but is so closely related to public health bacteriology as to make division unprofitable, it is pointed out.

The university departments of pathology should retain their primary functions of teaching and research and act as training centers for pathologists to supply the needs of the service, the pathologists say. The professors should act as the friends and advisers of the pathologists in their regions and in some cases as national advisers on special subjects and research problems. The public health bacteriologic service can function as a separate administration only at its main centers and even there must be closely associated with the universities and larger hospital laboratories, if only to avoid uneconomic duplications. At the periphery there must be complete fusion. A town serving an area of 100,000 inhabitants cannot support more than one laboratory, it is held. In larger towns the hospital and public health laboratories should be under the same roof, though under separate administration. The clinical laboratories must be situated in hospitals under the disciplinary and financial, but not professional, administration of the owning authorities. Laboratory facilities must be freely at the disposal of the general practitioners in the area, but there should be no isolated, small laboratories staffed only by technicians or by a solitary pathologist. The present hospital laboratories have provided only a skeleton service for the country, the group claims, and a larger number is needed. While the professional freedom of pathologists must be maintained, some central control of the whole service of pathology will have to be exercised if it is to be conceived as one complete section of medical service to the community.

Thiouracil in the Treatment of Thyrotoxicosis

Prof. H. P. Himsworth opened a discussion on thiouracil in the treatment of thyrotoxicosis at the Royal Society of Medicine. Being much safer, thiouracil had replaced thiourea, Professor Himsworth said, though the action of the two is similar. Thiouracil does not produce the vomiting, conjunctivitis or halitosis so commonly found with thiourea, he added. Treatment is in two stages—initial and maintenance. Initial treatment is continued until there is definite regression of signs and symptoms, which takes an average of twenty-nine days, with a dosage of 0.2 Gm. five times a day. All Himsworth's cases showed considerable improvement in this stage and none became drug resistant. The first change was usually disappearance of the skin flush and the last a fall in pulse rate. The average gain in weight was 3.5 Kg. (7 $\frac{7}{10}$ pounds). The basal metabolic rate fell from an average before treatment of +39.7 to +8.6 per cent, while the pulse rate fell from an average of

100 to 80. These improvements occurred in all cases, but other manifestations of improvement were not so consistently apparent. Exophthalmos was seldom diminished, and in most cases there was no reduction in the size of the thyroid. In other words, thiouracil controls only the manifestations of thyrotoxicosis due to the thyroid itself. It acted neither uniformly nor immediately; effects were not usually noticed until after a fortnight's treatment and the maximum effects in about four weeks. For maintenance, the smallest daily dose that would prevent remissions, usually 0.1 to 0.05 Gm., was given. Most of the patients were back at work in three months, Professor Himsworth said.

Toxic manifestations due to overdosage may appear early, when the goiter enlarges, he warned. Later they are insidious and recognizable by fatigue, depression and a bloated appearance. The toxic manifestations of idiosyncrasy are more serious and include fever, rashes, swelling of lymph glands and legs, and blood changes, of which agranulocytosis is the most serious. This proved fatal in 1 case.

A National Maternity Service

The latest manifestation of the trend toward socialization or state control of medical services is a report of the Maternity and Infant Health Services Committee of the Royal College of Obstetricians and Gynecologists, which recommends the formation of a national maternity service that would control all existing services and be controlled by a single administrative authority. Integration is regarded as absolutely essential for efficiency. It is laid down that a maternity service should have three principal aims: to bring the mother safely through pregnancy, labor and the puerperium, to secure the birth of a healthy infant and to leave the mother at the end of her confinement as well as she was when she became pregnant. In the opinion of the committee the fall in maternal mortality is by no means commensurate with the great improvements in medical science. Better use of our medical resources, the committee believes, would still further lower it. It proposes therefore that for purposes of a national service the country should be divided into areas having a population of about a million and yielding about 15,000 births a year and further divided into large "health regions."

In these regions the service would be based on key or primary centers consisting of not less than 100 lying-in beds (at least a third of them to be antepartum), antepartum and other clinics, a department for infants under a pediatrician, laboratories and teaching and research facilities. These key centers would, where possible, be part of a university medical school and have at their head a whole time professional obstetrician. In the areas the service would be based on divisional maternity centers closely associated with key centers. At the periphery would be small local centers. The whole service would act as a single unit with all parts integrated and should be actuated by the principles of continuity, completeness and cooperation.

To overcome the present difficulty, the shortage of a well trained staff, it is suggested that the university centers should be the undergraduate schools and some of the divisional centers the postgraduate schools and schools for midwives. The whole process would have to be evolved gradually until the standard of practice had been considerably raised. General practitioners should take an important share in the national service, but only those with special experience. Some improvements in postpartum treatment are urged. Hospital treatment is seldom required after childbirth, but peace and quiet and freedom from anxiety are essential. Two weeks or more in a postpartum hostel would make all the difference to the health and happiness of mother and child. Good as the work of midwives is, it would be improved by training in large maternity centers, the committee believes.

BUENOS AIRES

(From Our Regular Correspondent)

June 24, 1944.

The Argentine Quintuplets

Some months ago the daily papers announced the birth of quintuplets to a couple in Buenos Aires. The parents of the quintuplets wished to keep information on the matter private. Dr. José A. Beruti, professor of the obstetric clinic of the Faculty of Medicine of the University of Buenos Aires, who investigated the case, found that quintuplets were actually born. The grandmother had had one delivery of triplets and one of twins. A sister and sister-in-law each had two deliveries of twins. A history of twins in the father's family was not determined. Deliveries of single pregnancies during the first and second marriages were spontaneous and normal, and three children from those deliveries are normal. Five years ago the mother had an abortion of triplets at the third month of pregnancy.

During pregnancy and delivery of the quintuplets she was under the care of a midwife. The pregnancy was normal at the beginning. Edema of the legs and the abdomen and severe visual disturbances occurred from the fourth month of pregnancy on. The mother did not stop her daily work as a housewife. The midwife made a diagnosis of twins in the seventh month of pregnancy. In the course of the last month of pregnancy the mother made two excursions of twelve hours each by railroad. According to the midwife, by the end of pregnancy, which went to full term, the abdomen was large; fetal heart beats were "heard in several parts of the abdomen." The symptoms of parturition began on July 14, 1943, when the patient was transferred from her home to the midwife's house. Signs of moderate uterine contraction appeared occasionally on July 15. Subcutaneous administration of 1 cc. of posterior pituitary injection was followed by labor, which started within an hour. The infants were delivered at intervals of ten, twenty, twenty and fifty-five minutes. The bags of water ruptured spontaneously for every fetus except the third one. Delivery was spontaneous in all cases. Vertex presentation and normal delivery of normal infants occurred in 3 cases. Incomplete pelvic presentation and delivery with manual aid (delivery of the arms) occurred in 2 cases. All the infants were eupneic and cried loudly immediately after birth, except the fifth one. This last baby was born in blue asphyxia, but she was treated successfully. Every infant had the proper care and ligation of the cord before the next one was delivered. Two placentas of equal size and weight (700 Gm.) were spontaneously eliminated after delivery of the third and last infants. There were two boys and three girls. The mother had two attacks of lipothymia after delivery of the first and last babies and hypotonia of the uterus before delivering the last baby. A second subcutaneous administration of posterior pituitary injection was done before delivery of the fifth baby. Five hundred cc. of isotonic solution of sodium chloride, injections of proper doses of ergotone and caffeine and stimulants were administered to the mother after parturition. She was put in the Trendelenburg position with an ice bag on the abdomen (uterus). Total duration of delivery was nineteen hours and twenty-five minutes. The amount of eliminated amniotic fluid was about 500 cc. The amount of blood lost was about 1,000 cc. The weight of the infants twenty-four hours after birth was, in order of delivery, 1,300, 1,200, 1,150, 1,500 and 1,250 Gm. (300 Gm. more for the whole group than for the Dionne sisters). The mother never permitted the midwife to call a physician. The puerperium was normal.

The children were not premature. They showed great vitality. On the second day they began to have a mixture of colostrum from the mother, cow's milk and water. The infants were not put in incubators. Oxygen and carbon dioxide were not

administered. The infants were not put in a bath for the first three months of life. The weight of the infants at the age of 8 months and 10 days was 8,800, 8,800, 7,500, 8,400 and 7,500 Gm. They are healthy and beginning to cut teeth.

Interrelation of Hypophysis and Adrenal Glands
Demonstrated by Parabiosis

Drs. B. A. Houssay and R. M. Pinto recently read papers before the members of the Sociedad Argentina de Biología. They said that there is a functional correlation between the anterior part of the hypophysis and the adrenal glands. The former forms and eliminates adrenotropin, which stimulates the cortical functions of the latter and the production of which is regulated by certain substances produced by the adrenal cortex. Removal of the adrenal glands results in an increased production of adrenotropin. The union in parabiosis of a normal rat to another rat which has previously been deprived of the adrenal glands results in the production of adrenal hypertrophy of the normal rat, which hypertrophy is more pronounced if the parabiotic adrenalectomized rat is castrated before adrenalectomy. Sex glands and thyroids have no role in the production of adrenal hypertrophy of parabiotic rats, which is accompanied by increased secretion of hormones which produce atrophy of the thymus. The administration of large doses of desoxicorticosterone to adrenalectomized rats results in regeneration of the adrenal glands, with consequent diminution of the secretion of adrenotropin.

Use of Fish in Antimalarial Crusade

Dr. Alfredo Correas was appointed some time ago by the General Department of Malaria, which is a branch of the Argentine Department of Public Health and Social Assistance, to carry on studies which aimed to find out whether or not autochthonous fishes of the northern section of Argentina are larviphagic. Dr. Correas recently gave his report on the subject. He said that the larviphagic properties of autochthonous fishes of that section of the country are so mild that the fishes are of no value in the antimalarial program. He recommended the transplantation and breeding of voracious larviphagic species, such as gambusia fishes (*schizophallus*) of the southeastern section of the United States; the colisa, *macropodus*, *trichogaster* and beta species of the southeastern part of Asia, South Africa, the Nile River and the Congo; and also *Debistes reticulatus* Peters of South America.

Marriages

JOHN JUNIOR THOMPSON, Winona, Minn., to Miss Jewell Stanford of Willard, N. C., in Winston-Salem, N. C., June 24.
JAMES W. REAGAN, Warren, Ohio, to Lieut. Angelyn B. Boezeman of De Motte, Ind., in Fort Custer, Mich., June 1.

WESLEY HARVEY STONEBURNER, Wooster, Ohio, to Miss Mary Elizabeth Banks of Winchester, Tenn., July 3.

ANTHONY F. CARAVELLI, Haddon Heights, N. J., to Miss Olga F. Grellner of University City, Mo., June 29.

LOUIS FABIEN PINE, Burlington, Vt., to Miss Anita Evelyn Du Guay of Worcester, Mass., June 24.

ARTHUR J. HEWETT, Newbury, Mass., to Miss Mary Elizabeth Hogan of West Newbury, June 28.

HALLOWELL DAVIS, Boston, to Miss Florence Eaton of New York in Waterville, Maine, June 29.

JAMES J. MATEJKA JR., Chicago, to Miss Marie Agnes Murphy of Beloit, Wis., June 3.

HARLOW F. BANFIELD, Wellsville, Ohio, to Miss Geneva McCaulla of Springfield, July 8.

FORREST R. MARTIN, Paris, Ill., to Mrs. Cauline McKinney Staley of Decatur, June 20.

WILLIAM HENRY SHULL to Miss Cecelia Day Nuchol, both of Charlotte, N. C., June 1.

Deaths

Robert Morton Smith ☉ West Warwick, R. I.; College of Physicians and Surgeons, Baltimore, 1889; formerly member and president of the state board of health; instrumental in organizing the Kent County Medical Society, serving as its first president; one of the founders of the Pawtuxet Valley Visiting Nurse and Anti-Tuberculosis Association in 1908 and served continuously as chairman of the tuberculosis committee of the association; during World War I an examiner for the local draft board and chairman of the disaster relief unit of Pawtuxet Valley Branch of Providence Chapter, American Red Cross; formerly medical examiner for the State Sanatorium at Wallum Lake; member of the Pawtuxet Valley Chamber of Commerce, Rhode Island Historical Society, National Geographic Society and the Museum of Natural History; died July 10, aged 80, of general arteriosclerosis and cerebral thrombosis.

Clarence James McMullen, Los Angeles; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; member of the Illinois State Medical Society; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; served as assistant professor of medicine at Northwestern University Medical School, Chicago, as professor of internal medicine at the Illinois Post-Graduate Medical School and as assistant clinical professor of medicine at Rush Medical College, Chicago; formerly attending physician, Cook County Hospital and the Washington Boulevard hospitals, Chicago, and the City of Chicago Municipal Tuberculosis Sanitarium; died May 24, aged 54, of hypertensive heart disease.

William Edward Nesbit ☉ San Antonio, Texas; Johns Hopkins University School of Medicine, Baltimore, 1913; Army Medical School, 1918; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; chairman of the Procurement and Assignment advisory committee for Bexar County during World War II; served as chairman of the Selective Service System at San Antonio for two years and as civilian examiner at Induction Center, Camp Dodd, since its inception, served during World War I; a charter member of the Texas Club of Internists, of which he had been one of the organizers and past president; on the staffs of the Nix and Santa Rosa hospitals; died April 5, aged 55, of encephalitis.

Joseph Boardman Noble, Waukesha, Wis.; Rush Medical College, Chicago, 1886; member of the State Medical Society of Wisconsin; past president of the Waukesha County Medical Society; at one time owner of a hospital in Tower, Minn.; appointed city physician of Waukesha in 1902; for many years medical examiner for the New York, Mutual, Penn and Northwestern Life Insurance companies, formerly member of the library board and alderman; served as physician for the Wisconsin Industrial School for Boys, for twenty-five years surgeon for the Northwestern Railway; on the staff of the Waukesha Memorial Hospital, where he died May 7, aged 85, of cerebral arteriosclerosis.

Reeve Beecher Howland ☉ Elmira, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1895; past president of the Chemung County Medical Society; in 1897 joined the New York National Guard and served as assistant surgeon with the third New York Volunteer Infantry, assigned to duty in Virginia, during the Spanish-American War; later battalion surgeon and assistant regimental surgeon with the rank of captain; served as medical examiner for the U. S. Army recruiting office; for many years health officer of Elmira; on the staffs of the Arnot-Ogden Memorial and St. Joseph's hospitals; died in New York May 12, aged 74, of coronary thrombosis.

Farrar Cobb, Hyannis, Mass.; Harvard Medical School, Boston, 1893; member of the Massachusetts Medical Society and the New England Surgical Society; fellow of the American College of Surgeons; at one time lecturer on surgery at his alma mater; served on the staff of the Massachusetts General Hospital and as superintendent of the Massachusetts Eye and Ear Infirmary in Boston; chief surgeon from 1930 to 1935 and on the consulting staff from 1930 to 1944 of the Cape Cod Hospital, where he died May 30, aged 77, of cerebral and general arteriosclerosis and uremia.

John Bunyan Acken, Griggstown, N. J.; University of the City of New York Medical Department, New York, 1885; formerly on the staffs of the Blackwell's Island Hospital, the Northwestern Dispensary and Bellevue Hospital in New York; died May 16, aged 88 of chronic myocarditis and arteriosclerosis.

Clifford William Andrews, Waupaca, Wis.; Bennett Medical College, Chicago, 1911; at one time health officer of Beloit; served during World War I; major, medical reserve corps of the U. S. Army, not on active duty; on the staff of the City Hospital; died May 4, aged 62, of coronary thrombosis.

Jabez Eldridge Armstrong ☉ Greenwich, N. Y.; University of Buffalo School of Medicine, 1904; for many years health officer of the town of Greenwich; member of the associate staff of the Mary McClellan Hospital, Cambridge; died June 3, aged 74, of arteriosclerosis and coronary disease.

Charles Harper Baker, Bay City, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882; member and in 1919 president of the Michigan State Medical Society; life member and past president of the Bay County Medical Society; member of the American Academy of Ophthalmology and Otolaryngology; on the staffs of the Mercy and General hospitals; died July 7, aged 84, of carcinoma of the stomach.

George Edward Baldwin ☉ Green Lake, Wis.; University of the City of New York Medical Department, New York, 1890; an Affiliate Fellow of the American Medical Association; died May 10, aged 78, of coronary thrombosis, cardiorenal disease and hypertension.

John Henry Becker Jr., Port Jefferson Station, N. Y.; Long Island College Hospital, Brooklyn, 1907; died April 25 of cerebral hemorrhage, hypertension and arteriosclerosis.

Pierre Bergeron, Manchester, N. H.; Laval University Faculty of Medicine, Quebec, Que., Canada, 1904; member of the New Hampshire Medical Society; served during World War I; died May 7, aged 62, of chronic myocarditis, myocardial decompensation and coronary thrombosis.

Thackery Louis Berry, Frankfort, Ky.; Meharry Medical College, Nashville, Tenn., 1915; died June 7, aged 54.

Walter Day Biggs, Lometa, Texas (licensed in Texas by years of practice); health officer; died May 11, aged 71, of carcinoma of the throat.

Harry Bock, Ossining, N. Y.; Bellevue Hospital Medical College, New York, 1898; died April 10 of generalized arteriosclerosis.

John C. Boyle, Medical Lake, Wash.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1903; assistant superintendent and later assistant physician of the Eastern State Hospital; died May 7, aged 66.

Charles Edward Brain, Salt Lake City; Jefferson Medical College of Philadelphia, 1910; member of the Utah State Medical Association; served during World War I; member of the senior staff, St. Mark's Hospital; died June 4, aged 57, of coronary occlusion due to coronary sclerosis.

Jennie Nicholson Browne, Baltimore; Woman's Medical College of Baltimore, 1902; formerly professor of physiology at her alma mater; died June 21, aged 68, of coronary occlusion, chronic myocarditis and arteriosclerosis.

John Harold Buffum ☉ Wallingford, Conn.; University of Vermont College of Medicine, Burlington, 1898; died in the Meriden Hospital, Meriden, May 28, aged 69, of pneumonia.

Ervin M. Campbell, Ferriday, La.; Memphis (Tenn.) Hospital Medical College, 1906; served as coroner; died May 16, aged 68, of myocarditis.

Quinn C. Cantrell, McMinnville, Tenn.; University of Tennessee Medical Department, Nashville, 1908; for many years health officer of Warren County; died June 7, aged 64, of cerebral hemorrhage.

Benjamin Franklin Chambers, Port Arthur, Texas; Memphis (Tenn.) Hospital Medical College, 1901; member of the State Medical Association of Texas; on the staff of St. Mary's Hospital, Gates Memorial; died May 18, aged 70, of myeloma.

William Levi Clark, Hoosick, N. Y.; University of Vermont College of Medicine, Burlington, 1885; member of the Medical Society of the State of New York; served in the medical corps of the U. S. Army during World War I; served as health officer of Hoosick; died in a hospital at Albany June 16, aged 80.

Marsden Treutlen Cleckley, Augusta, Ga.; Hahnemann Medical College and Hospital of Philadelphia, 1895; died May 8, aged 73.

Edward Moody Cook ☉ York Harbor, Me.; Harvard Medical School, Boston, 1924; diplomate of the National Board of Medical Examiners; served overseas during World War I; died in May, aged 44, of periarteritis nodosa.

Orris Graem Cruikshank, Terre Haute, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1898; surgeon for the Chicago, Milwaukee and St. Paul Railroad; died June 17, aged 83, of cerebral hemorrhage.

George Washington Götler, Prescott, Ariz.; Harvard Medical School, Boston, 1892; died June 3, aged 78.

Homer J. Davidson Ⓢ Seattle; Johns Hopkins University School of Medicine, Baltimore, 1905; fellow of the American College of Surgeons; on the staffs of the Swedish Hospital and the Columbus Hospital, where he died May 28, aged 66, of uremia.

Lafayette Millard Davis, Roanoke, Va.; Kentucky School of Medicine, Louisville, 1904; medical examiner for the Norfolk and Western Railway Company; died May 6, aged 62.

Harry W. Dechert, Orwigsburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the Medical Society of the State of Pennsylvania; served on the staff of the Pottsville Hospital, Pottsville; for many years examining physician for the Reading Railroad; died in the Schuylkill County Hospital, Schuylkill Haven, May 29, aged 71, of diabetes mellitus, arthritis and disease of the prostate.

Robert W. Dixon, Dixon, Ky.; Kentucky School of Medicine, Louisville, 1896; died May 29, aged 74.

Michael Joseph Dowd Ⓢ Thompsonville, Conn.; Baltimore Medical College, 1901; examiner for the Metropolitan Life Insurance Company for many years; served as examiner for the Connecticut State Boxing Commission; on the staff of the Mercy Hospital, Springfield, Mass., where he died April 4, aged 75, of prostatitis and acute cardiac failure.

Sylvester A. J. Ennis Ⓢ Shullsburg, Wis.; Milwaukee Medical College, 1910; president of the LaFayette County Medical Society; served during World War I; owner of Dr. Ennis' Hospital; organizer of the LaFayette County Tuberculosis Clinic at Darlington; surgeon for the Chicago, Milwaukee and St. Paul Railway; president of the Shullsburg Park Commission since the park was established; died in the Wisconsin General Hospital, Madison, May 19, aged 58, of arteriosclerotic heart disease.

Samuel Clyde Fittz, Winnfield, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1907; member of the Louisiana State Medical Society; served as parish coroner; medical examiner for Winn Parish Selective Service Board during World War I and II; senior member of the Fittz-Faith Clinic; died May 14, aged 63.

Maurice Monroe Fleagle, Hanover, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1896; past president of the board of health; on the staff of the Hanover General Hospital; died May 30, aged 72, of coronary thrombosis.

Andrew H. Frankel, Chicago; Wisconsin College of Physicians and Surgeons, Milwaukee, 1906; senior lieutenant in the U. S. Naval Reserve during World War I, serving later with the same rank in the regular navy; on the staffs of the American and John B. Murphy hospitals; died May 29, aged 61, of cerebral hemorrhage, arteriosclerosis and chronic nephritis.

Robert Lionel Gordon, Woodside, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1922; member of the Louisiana State Medical Society and the American Urological Association; served an internship at the U. S. Marine Hospital number 14 in New Orleans; on the staffs of Hotel Dieu, Mercy, Baptist and French hospitals, New Orleans, serving at one time as president of the staff of the last; died May 5, aged 44, of diabetes mellitus and coronary thrombosis.

Middleton Howard Hagood Ⓢ Brewton, Ala.; Medical College of Alabama, Mobile, 1898; for many years secretary of the Escambia County Medical Society; served in France during World War I; member of the board of education; died in a hospital at Montgomery May 21, aged 70, of coronary occlusion.

Charles Huse Hale, Boswell, Okla.; Kentucky School of Medicine, Louisville, 1908; member of the Oklahoma State Medical Association; served as president of the Choctaw County Medical Society; examiner for the Frisco Railroad; died April 25, aged 70, of heart disease.

Frederick A. Hayes, Buffalo; Niagara University Medical Department, Buffalo, 1892; member of the Medical Society of the State of New York; died April 30, aged 78, of coronary sclerosis and arteriosclerotic heart disease.

Arthur Hebb, Baltimore; Baltimore Medical College, 1898; member of the Medical and Chirurgical Faculty of Maryland;

served on the staff of the Johns Hopkins Hospital; died April 24, aged 66, of hypostatic pneumonia, cerebral thrombosis, general arteriosclerosis and diabetes mellitus.

James Burch Joyce, Baltimore; University of Maryland School of Medicine, Baltimore, 1894; formerly member of the city health department; died May 21, aged 72, of subarachnoid hemorrhage and hypertensive cardiovascular disease.

Benjamin Edward Kaplan, Newark, N. J.; University and Bellevue Hospital Medical College, New York, 1905; died May 21, aged 60, of coronary thrombosis and arteriosclerotic heart disease.

Andrew Edward Kepert, Calumet City, Ill.; Jenner Medical College, Chicago, 1905; also a pharmacist; died in St. Margaret Hospital, Hammond, Ind., May 26, aged 65, of carcinoma of the liver.

John Jay Kinney, Wooster, Ohio; University of Wooster Medical Department, Cleveland, 1889; member of the Ohio State Medical Association; on the staff of the Community Hospital, formerly known as the Kinney Hospital, of which he had been the founder, and physician in charge of the Kinney-Knestrick Hospital and the Kinney Memorial Emergency Hospital; died in the Flagler Hospital, St. Augustine, Fla., May 14, aged 79, of coronary thrombosis.

Harry Wadsworth Long Ⓢ Escanaba, Mich.; Northwestern University Medical School, Chicago, 1900; served during World War I; on the staff of St. Francis Hospital; died May 30, aged 65, of coronary thrombosis.

William J. McKown, Albany, N. Y.; Albany Medical College, 1894; member of the Medical Society of the State of New York; a captain in the New York National Guard from 1905 to 1911; on the staff of the Memorial Hospital; died May 28, aged 72, of carcinoma of the throat.

Orville Bruce Moon Ⓢ Bisbee, Ariz.; Vanderbilt University School of Medicine, Nashville, Tenn., 1915; city and county health officer; for many years a member of the staff of the Copper Queen Hospital; member and past president of the Kiwanis Club; died in Warren May 22, aged 54, of coronary thrombosis.

Charles Arthur Mooney, Ferndale, Mich.; University of Michigan Medical School, Ann Arbor, 1916; member of the Michigan State Medical Society; first lieutenant in the medical corps of the U. S. Army during World War I; health officer of Ferndale; a member of the board of trustees of the Oakland County Tuberculosis Sanatorium, Pontiac, from 1938 to 1940, when he became chairman of the board; on the staff of the Mount Carmel Mercy Hospital, Detroit, where he died May 30, aged 54, of pneumonia and heart disease.

Joseph Sauter Muller, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1905; member of the Louisiana State Medical Society; served with the U. S. Immigration Service during World War I; died in the Hotel Dieu, Sisters' Hospital May 19, aged 60, of acute myocarditis.

Frank Edward Murphy, St. Louis; St. Louis University School of Medicine, 1920; died in the Missouri Baptist Hospital May 18, aged 51, of lobar pneumonia.

John H. Neary, Detroit; Michigan College of Medicine and Surgery, Detroit, 1900; member of the Michigan State Medical Society; active in the founding and on the staff of St. Joseph's Mercy Hospital, where he died May 21, aged 68; of cardiac failure and carcinoma of the sigmoid.

Martin Landis Nissley Ⓢ Hummelstown, Pa.; Medico-Chirurgical College of Philadelphia, 1905; for many years member and president of the school board; served as director and president of the Hummelstown National Bank; president of the Hummelstown Mutual Fire Insurance Company; physician for the Paxtang draft board during World War I; medical superintendent of the Dauphin County Hospital, Harrisburg; died May 26, aged 62, of heart disease.

James Albert Northcross, Chicago; Meharry Medical College, Nashville, Tenn., 1919; found drowned May 27, aged 54.

John Hanly O'Connell Ⓢ Topeka, Kan.; St. Louis University School of Medicine, 1909; treasurer and past president of the Kansas Medical Society; served during World War I; on the staffs of Christ's Hospital, St. Francis Hospital and the Stormont Hospital, where he died May 22, aged 59, of coronary thrombosis and arteriosclerosis.

Carolyn L. Olendorf Ⓢ Cobleskill, N. Y.; Woman's Medical College of Pennsylvania, Philadelphia, 1899; died May 23, aged 69, of cerebral hemorrhage.

Walter Peter Prudhomme, Pineville, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1906; member of the Louisiana State Medical Society; served overseas during World War I; served on the staff of the Central Louisiana State Hospital; died April 4, aged 62.

Bert E. Purcell @ Iowa Falls, Iowa; State University of Iowa College of Medicine, Iowa City, 1898; member of the city council; died May 15, aged 70, of coronary occlusion.

John Willard Robinson, Grand Rivers, Ky.; Kentucky School of Medicine, Louisville, 1897; member of the Kentucky State Medical Association; died June 1, aged 78, of cirrhosis of the liver.

Samuel Theodore Roeder Jr., Baltimore; University of Maryland School of Medicine, Baltimore, 1891; died April 26, aged 75, of chronic myocarditis, nephritis and arteriosclerosis.

Rupert Reed Rogers, Warren, Ohio; Columbia University College of Physicians and Surgeons, New York, 1914; member of the Ohio State Medical Association and the American Academy of Pediatrics; a member of the staff of the Warren City Hospital; died April 20, aged 56, of multiple myeloma.

William Frederick Saybolt, Forest Hills, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; member of the Medical Society of the state of New York; fellow of the American College of Surgeons; served on the staffs of the Mary Immaculate Hospital, Jamaica, St. Catherine's and the Lutheran hospitals, Brooklyn, and the Doctors Hospital, New York; died in St. Francis Hospital, Port Jervis, June 20, aged 65.

Charles Edward Schoff @ Sacramento, Calif.; Cooper Medical College, San Francisco, 1908; specialist certified by the American Board of Dermatology and Syphilology; member of the state board of medical examiners from 1929 to 1940; served on the staffs of the Sacramento County and Sutter General hospitals; died May 28, aged 59, of cerebral embolism.

Winthrop Davis Scudder, West Hartford, Conn.; Harvard Medical School, Boston, 1920; member of the Connecticut State Medical Society; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; on the staff of the Hartford Hospital, Hartford; died in the New England Deaconess Hospital, Boston, May 13, aged 50, of glioblastoma multiforme of one cerebral hemisphere.

Edwin J. Siegmund, Wabash, Ind.; Chicago Homeopathic Medical College, 1901; served as health officer of Wabash County and as school doctor; died May 25, aged 68, of heart disease.

Albert French Storke, Oak Park, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1890; member of the Illinois State Medical Society; formerly health officer of Oak Park and secretary of the department of health; died in the West Suburban Hospital May 28, aged 75, of chronic myocarditis and cerebral embolism.

Clifford William Walden, Beatrice, Neb.; John A. Creighton Medical College, Omaha, 1896; died in the Bishop Clarkson Memorial Hospital, Omaha, May 11, aged 67, of pneumonia.

Silas Anderson Walker, La Follette, Tenn.; Tennessee Medical College, Knoxville, 1894; died in a Knoxville hospital May 21, aged 79, of cerebral hemorrhage.

Samuel Arthur Watts, Marlin, Texas; Medical Department of Grant University, Chattanooga, Tenn., 1902; member of the State Medical Association of Texas; urologist, Torbett Clinic and Hospital; died April 21, aged 69, of chronic bronchitis and acute pneumonia.

Karl Robert Werndorff, Council Bluffs, Iowa; Medizinische Fakultät der Universität Wien, Austria, 1902; member of the Iowa State Medical Society, Clinical Orthopedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; on the staff of the Jennie Edmundson Memorial Hospital; died May 28, aged 66, of coronary thrombosis.

Lyle Livingstone Wyse, Hamburg, N. Y.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1931; member of the Medical Society of the State of New York; interned at the Toronto General Hospital and the Hospital for Sick Children in Toronto; served as resident in otology, laryngology and rhinology at the Buffalo General Hospital; on the staffs of Our Lady of Victory Hospital in Lackawanna, Buffalo General, Children's and Mercy hospitals in Buffalo; died May 21, aged 38, of coronary occlusion.

DIED WHILE IN MILITARY SERVICE

Frederick Henry Dieterich @ Miami, Fla.; Columbia University College of Physicians and Surgeons, New York, 1910; specialist certified by the American Board of Pathology, Inc.; formerly on duty at the Peking Union Medical College, Peking, China; served as an instructor in surgery at his alma mater, director of pathology at the Creighton University Medical School, Omaha, and later served at the Rockefeller Institute in New York; formerly professor of pathology at the Medical College of the State of South Carolina, Charleston, where he had been consultant pathologist at the State Hospital; formerly director of laboratories at the Good Samaritan Hospital, Cincinnati, and on the staffs of the James M. Jackson Memorial Hospital, Miami, and St. Francis Hospital, Miami Beach; formerly pathologist for the department of welfare in New York City and director of bureau of laboratories, department of public health at Yonkers, N. Y.; served during World War I; commissioned a major in the medical corps, Army of the United States, on April 28, 1942; U. S. Army laboratory officer at the AAF Regional Station Hospital, Barksdale Field, La., where he died February 16, aged 56, of coronary occlusion.

Roland Nikolaus Klemmer @ Lancaster, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1922; diplomate of the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; member of the American Heart Association; fellow of the American College of Physicians; served as chief of the medical staff, Lancaster General Hospital; commissioned a lieutenant commander in the medical corps of the U. S. Naval Reserve on Aug. 11, 1941 and began active duty on Dec. 29, 1941; later promoted to commander; died aboard ship in the Pacific area May 9, aged 46, of chronic myocarditis.

Leo Hartney McMahon @ Breckenridge, Minn.; St. Louis University School of Medicine, 1925; served on the staff of St. Francis Hospital; commissioned a lieutenant commander in the medical corps of the U. S. Naval Reserve on Nov. 18, 1943; a medical officer at the Great Lakes Naval Training Center, Great Lakes, Ill.; died in Waukegan, Ill., May 29, aged 42.

Ross Mayberry Newman @ Kansas City, Mo.; Washington University School of Medicine, St. Louis, 1931; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; fellow of the American College of Surgeons; assistant in surgery at the University of Kansas School of Medicine, Kansas City, Kan.; attending surgeon in urology at the Kansas City General Hospital; chairman of the department of urology, St. Joseph Hospital; member of the executive staff in urology at the Research Hospital; member of the visiting staff in urology at St. Luke's Hospital and St. Mary's Hospital; on May 22, 1942 commissioned a captain in the medical corps, Army of the United States, beginning extended active duty on May 31, 1942; later promoted to major; died in Chicago June 10, aged 38.

John Joseph Whoriskey Jr., Cambridge, Mass.; Tufts College Medical School, Boston, 1942; diplomate of the National Board of Medical Examiners; served an internship at the Newton Hospital, Newton; first lieutenant, medical corps, Army of the United States; died on board ship en route to the American area April 13, aged 26.

Robert James Wilson @ Lieutenant Colonel, M. C., U. S. Army, Buffalo; University of Buffalo School of Medicine, 1931; Army Medical School, 1933; commissioned a first lieutenant in the medical reserve corps of the U. S. Army in 1931; entered the medical corps of the U. S. Army in 1932; promoted to captain in 1934, major on July 1, 1943 and later to lieutenant colonel; interned at the Walter Reed General Hospital, Washington, D. C., where he served as assistant chief ward officer in the surgical service; later assigned to the Army and Navy General Hospital at Hot Springs National Park, Ark.; in 1941 became associated with the Office of the Surgeon General Finance and Supply Division; later chief of the Civilian Personnel Division; staff officer of the U. S. Army Bruns General Hospital, Sante Fe, N. M., where he died July 1, aged 38.

Bureau of Investigation

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

Following are abstracts of stipulations in which promoters of "patent medicines," medical devices and cosmetics have agreed, following action by the Federal Trade Commission, to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products.

Black-Draught, Syrup of Black-Draught and Black Draught (Granulated)—That these preparations contain a tonic, help to tone lazy intestinal muscles or the digestive system, or have any effect on a sallow complexion were misrepresentations which the Chattanooga Medicine Company and Nelson Chesman Company, an advertising agency, both of Chattanooga, Tenn., agreed to eliminate from the advertising, in a stipulation that they entered into with the Federal Trade Commission in August 1943. They agreed, further, not to publish any advertisement which fails to reveal that these products should not be used when abdominal pain, nausea, vomiting or other symptoms of appendicitis are present, provided, however, that such advertisement need only contain the statement, "Caution Use only as directed if the label instructions for use bear a warning to the same effect."

Crysta-Jell and Reducers Skin Lotion—These are put out by Eugene Schiff, trading as Schiff Bio Food Products, Detroit. In September 1943 he entered into a stipulation with the Federal Trade Commission in which he agreed to discontinue the following advertising misrepresentations: That Crysta-Jell will restore energy or health, preserve health, youth or appearance, cure obesity, satisfy hunger, or effect a loss of 3 to 4 pounds of weight per week or in any other definitely stated amount within any given period of time, that it contains no drugs or chemicals, that it is a vegetable gelatin compound or a vegetable compound or that Reducers Skin Lotion will keep the skin firm.

Hanovia Alpine Sun Lamp—The Hanovia Chemical & Manufacturing Company, Newark, N. J., entered into a stipulation with the Federal Trade Commission in September 1943 in which it agreed to discontinue the following misrepresentations in the sale of this device: That the rays from the lamp are equivalent to those of the sun in physical or therapeutic properties, and that through its use a person may enjoy all the health giving benefits of sunshine, that because of its quartz burner the lamp possesses all the healing and tonic qualities of ultraviolet lamps, that the use of the lamp will clear the complexion of blemishes, build resistance against colds and disease, assure sound teeth, stabilize the nerves, kill bacteria, shorten a period of convalescence, and be an indispensable means to beauty, and that it is endorsed by the medical profession the world over for unsupervised home treatment. The concern further stipulated that it would discontinue any advertisement or trade literature which failed to reveal clearly that exposure to the lamp with respect to either proximity or length of time may result in injury to the user, that the device should not be used in cases of pellagra, lupus erythematosus, or certain types of eczema, and that it should never be used unless goggles are worn to protect the eyes. The stipulation provided, however, that such advertising need contain only the statement, "Caution Use only as directed" when the directions on the label include a warning to the same effect.

Histeen Tablets—On Aug. 23, 1943, the Histex Corporation, Chicago, entered into a stipulation with the Federal Trade Commission, agreeing to discontinue any advertisement which did not reveal that Histeen Tablets should not be taken by persons having heart or kidney ailments, except on competent medical advice, and that the product may cause serious blood disturbances if taken frequently or continuously. It was provided, however, that such advertisements need contain only the statement, "Caution Use only as directed if the directions for use contain a warning to the same effect." This preparation is sold as a hay fever treatment, and an earlier stipulation was entered into in February 1938 by the promoters, in which they agreed to discontinue representing that Histeen will give relief for hay fever sufferers in a radically different way, that it works like magic and eliminates every trace of hay fever suffering for an entire season, that it is the fastest acting cold remedy and will relieve other miseries unless this latter claim is qualified so as to show the therapeutic limitations of the product.

Mistol Drops and Mistol Drops with Ephedrine—In September 1943 Stanco Incorporated, New York, which puts out these products, and McCann Erickson, Inc., which handles the advertising, stipulated with the Federal Trade Commission to discontinue any advertisements which failed to reveal that the preparations should not be administered to undernourished infants, abnormally weak children or debilitated elderly persons that frequent or excessive use of Mistol Drops should be avoided and that such use in the case of the other Mistol product might cause nervousness, restlessness or sleeplessness, and that persons suffering from high blood pressure, heart disease, diabetes or thyroid trouble should

not use the ephedrine product except on competent advice. The stipulation provided, however, that such advertising need contain only the statement, "Caution Use only as directed" if and when the directions for use are given on the label and carry a warning to the same effect.

Pomade Gonzalez—This is put out by one Espiridion Gonzalez, Laredo, Texas, who stipulated with the Federal Trade Commission in August 1943 that he would cease representing that the product may give excellent results in cases of ringworm, warts or skin sores, or will remove all kinds of skin eruptions. He further agreed to discontinue any advertisements which failed to reveal that the Pomade contains 50 per cent of salicylic acid and that a product of this strength, when repeatedly applied to the skin (other than two or three applications for hard corns and calluses) will cause local irritation. It was provided, however, that such advertisements need only contain the statement, "Caution Use only as directed" if the label directions bear a warning to the same effect.

Posture-Aid—This alleged health device is put out by J. W. Cole, trading as Posture Aid Company, Dallas, Texas. In August 1943 Cole, with John and Evelyn Brough, who conduct the agency handling the Posture Aid advertising, stipulated with the Federal Trade Commission that they would discontinue the following advertising misrepresentations: That the device relieves constipation, headache, backache, nervousness, fatigue or tenseness, pulls muscles into place, relaxes or strengthens them, relieves tired or cramped muscles or trains them to hold the body erect, corrects misplaced vertebrae, double chin, round shoulders, swayback or flat chest, lifts the chest or gives greater room for lung expansion, flattens the stomach, promotes health, appetite, well being, new energy, beauty of figure or improved posture, exercises the muscles of the neck or tones, relaxes, straightens or stretches the spine.

S P S Scalp Food—In August 1943 Samuel P. Shokunbi, trading as the S P S Chemical Company, Chicago, entered into a stipulation with the Federal Trade Commission in which he agreed to discontinue the following advertising misrepresentations: That the product will feed or nourish the scalp, promote the growth or improve the grade of hair, or be a cure or remedy for itching scalp, eczema, conditions which cause falling hair or dandruff, except in so far as its use will facilitate the mechanical removal of loose scales of dandruff. The respondent further agreed to cease representing, through the use of the term "Scalp Food" or any other expression of similar meaning, that the product will feed or nourish the scalp.

Vita Fluff, Loveli and Glamour—These are put out by Donald H. and Matilda Miller, trading as Northern Research Industries, Dayton, Ohio. In a stipulation which they entered into with the Federal Trade Commission in August 1943, they agreed to discontinue the following advertising misrepresentations: That Vita Fluff adds natural sheen or any sheen or luster to the hair, that Loveli is not similar to Vita Fluff, and that the two are not identical, except for a small content of synthetic oil added to Loveli, that Loveli creates a true sheen which will last indefinitely or for any longer time than that produced by ordinary oil shampoos that Glamour is made from actual lemon, or that, as an acid free product, it may be relied on to accomplish results equivalent to those obtained from a lemon rinse. They further agreed to discontinue any statements to the effect that nonlathering oil shampoos do not rinse out of the hair, that they have little, if any, cleansing action and will not cleanse the hair or alter the natural stretch of human hair, and to cease making any other unwarranted statement which might tend to disparage or discredit competitors or their products. Further, they agreed to discontinue use of the trade designation "Northern Research Industries" for their business, or the word "Research," either alone or in combination with other words, in any manner that might give the impression that their business is a research undertaking.

Wade's Wonder Worker—That this product will remove corns or calluses instantly or afford immediate relief from them, or that it contains ingredients not found in other preparations and is an effective treatment for bunions, chilblains, ingrowing nails, warts, rusty nail wounds, poison oak, or all skin diseases and disorders, is an adequate treatment for all deep-seated cases of athlete's foot or ringworm, or for bites or stings of poisonous insects or can be depended on to relieve all types of toothache were misrepresentations which Claren Richard Wade, trading as C. R. Wade Medicine Company, Hot Springs, Ark., agreed to remove from his advertising in a stipulation that he entered into with the Federal Trade Commission in August 1943. He further stipulated to discontinue any advertisement which did not clearly reveal the potential danger in using the product. It was provided, however, that if the directions for use, whether appearing in or on the labeling, contain adequate and specific warnings as to the potential danger, the advertisement need bear only the statement, "Caution Use only as directed."

Western Medical Corporation's Treatment—This has been promoted for years to the public, chiefly by mail. In May 1943 the Federal Trade Commission reported that it had accepted a stipulation from the Western Medical Corporation of Chicago, in which the latter agreed to discontinue the following misrepresentations: That the method of treatment it offers for epilepsy is new or uncommon and that methods followed in general are 'old fashioned', that its method of treatment will 'do something more' than simply hold down epileptic attacks or that it may be expected to reach and treat the underlying causes of such attacks that the cases of epilepsy are usually known to the physician employed by the corporation and that in general such cases are inherited bodily weaknesses from ancestral disorders or diseases, injury, fright, overexertion, a permanent weakening of the system by such ailments as glandular diseases, typhoid, influenza and pneumonia, and that from written answers to questionnaires the respondent corporation can obtain sufficient information for the adequate and effective treatment of a

case of epilepsy. According to the Commission, the preparations sold by the respondent contained such drugs as thyroid extract, zinc phosphide, bromides, laxatives or phenobarbital, which, the stipulation states, are dangerous to health if used in too frequent or too large doses or for extended periods of time. The corporation agreed to discontinue any advertising which failed clearly to reveal that such ingredients are potentially dangerous to the health of the user. It was provided, however, that it would be sufficient for the advertising to warn: "Caution, Use Only as Directed" when the directions on the labels contained an adequate and specific warning as to the potential dangers mentioned above.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the Examining Boards in Specialties were published in THE JOURNAL, July 29, page 931.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, Oct. 24-26. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, September 5. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

DELAWARE: Dover, Oct. 10-12. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * Washington, November. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

INDIANA: Indianapolis, Jan. 3-5. Exec. Sec., Board of Medical Registration and Examination, Miss Ruth V. Kirk, 301 State House, Indianapolis 4.

IOWA: * Iowa City, Sept. 25-27. Dir. Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Nov. 2-3. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, Sept. 11-12. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville.

LOUISIANA: Sept. 7-9. Sec., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MINNESOTA: * Minneapolis, Aug. 29-31. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSOURI: St. Louis, Sept. 18-20. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 2-4. Sec., Dr. O. G. Klein, First Nat'l. Bank Bldg., Helena.

NEBRASKA: * Omaha, Sept. 26-28. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Board of Registration in Medicine, Dr. D. G. Smith, 77 Main St., Nashua.

NEW MEXICO: * Santa Fe, Oct. 9-10. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NORTH CAROLINA: Raleigh, Sept. 11-12. Sec., Dr. W. D. James, Hamlet.

OHIO: Examination. Columbus, Sept. 26-29. Endorsement. Columbus, Oct. 3. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, Sept. 16. Sec., Dr. J. D. Osborn, Jr., Frederick.

SOUTH CAROLINA: Charleston, Sept. 11-13. Sec., Dr. N. B. Heyward, 1329 Blandena St., Columbia.

UTAH: Salt Lake City, Sept. 20-22. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, Sept. 12-14. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: Richmond, Sept. 19-22. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WEST VIRGINIA: Charleston, Oct. 2-4. Commissioner, Public Health Council, Dr. John E. Offner, State Capitol, Charleston 5.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

DISTRICT OF COLUMBIA: Washington, October. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

FLORIDA: Gainesville, Nov. 4. Final date for filing application is Oct. 20. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

MICHIGAN: Ann Arbor and Detroit, Oct. 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

OREGON: Portland, Nov. 4. Sec., Mr. C. D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, Aug. 16. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

WISCONSIN: Madison, Sept. 23. Sec., Prof. R. N. Bauer, 152 W. Wisconsin Ave., Milwaukee 3.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Federal Food, Drug and Cosmetic Act: Marmola Tablets for Obesity Misbranded.—The United States filed a libel in the federal district court, western district, Wisconsin, for the condemnation of a shipment in interstate commerce of Marmola Prescription Tablets, marketed as a cure for obesity, on the ground that the preparation was misbranded within the meaning of the Federal Food, Drug and Cosmetic Act. The Raladam Company, which marketed the preparation to wholesale and retail outlets, intervened in the proceedings. The trial court ordered that a decree of condemnation issue (*United States v. 62 Packages More or Less, of Marmola Prescription Tablets*, 48 F. Supp. 878; J. A. M. A. 122:702 [July 3] 1943) and the Raladam Company appealed to the circuit court of appeals, seventh circuit.

The libel filed by the federal government alleged that the preparation was misbranded within the meaning of the Federal Food, Drug and Cosmetic Act because (1) it was dangerous to health when used in the dosage or with the frequency prescribed in its labeling and (2) the labeling was false and misleading by reason of its failure to reveal facts with respect to consequences which may result from its use under the conditions of use prescribed on the label. There was present in each tablet of the preparation $\frac{1}{2}$ grain (0.03 Gm.) of desiccated thyroid, containing approximately 0.3 per cent organic iodine, which is about 50 per cent more organic iodine than is present in desiccated thyroid U. S. P., producing consequently greater physiologic effect than equivalent amounts of a U. S. P. product of desiccated thyroid. It was the failure of the label adequately to conform to the provisions of the act because of the presence of the desiccated thyroid in the preparation that formed the real basis of the government's libel. According to the labeling of the preparation, it is intended as a cure for obesity and is for use only by obese persons who are otherwise normal and healthy and whose obesity is caused by hypothyroidism with accompanying subnormal metabolism. The labeling further represented that hypothyroidism is the basic cause of obesity, which results from a lack of a substance which Marmola supplies, and recommended a dose, where indicated, of four tablets daily. This daily dosage recommended is equivalent to 2 grains (0.13 Gm.) of desiccated thyroid containing 0.3 per cent organic iodine, or to 3 grains (0.2 Gm.) of desiccated thyroid containing 0.2 per cent organic iodine in a U. S. P. product. The trial court found under the circumstances that the Federal Food, Drug and Cosmetic Act had been violated because Marmola tablets, when used in the dosage and with the frequency, and for the duration prescribed, recommended or suggested in their labeling are dangerous to health. The circular accompanying each bottle of Marmola recommended that the user take one Marmola tablet before each meal and one at bedtime over a period of sixty to ninety days—if needed that long. The circular advised the user to stop taking Marmola if he or she lost abnormal excess weight if later weight was redeemed and to resume the taking of Marmola tablets until conditions are corrected and to consult the user's physician if any unusual circumstances or conditions arise.

The essential question in this case, said the circuit court of appeals, is whether the evidence before the trial court is such as to justify us in saying as a matter of law that the trial court's finding that the Federal Food, Drug and Cosmetic Act had been violated because Marmola Tablets when used in the dosage and with the frequency and for the duration prescribed, recommended or suggested in their labeling are dangerous to health is erroneous. Obviously, said the court, the trial court's finding should not be set aside unless clearly against the weight of the evidence. The Raladam Company has sold this concoction for more than thirty years as a reducing aid for persons whose obesity is supposed to be caused by hypothyroidism and

who have an accompanying subnormal metabolism. "Hypothyroidism," resulting from underfunctioning of the thyroid gland, is accompanied by a subnormal metabolic rate and such symptoms as dryness of the skin, scarcity of hair and eyebrows, sluggishness of physical and mental reactions, decreased appetite, slower pulse rate and characteristic changes in the composition of the blood, and, in advanced stages, by a puffy and swollen appearance of the face and other parts of the body due, not to increased fatty tissue, but to mucoid fluid deposited beneath the skin. "Metabolism" denotes the sum total of all processes of the human body by which food is transformed into chemicals in turn absorbed into the blood stream and lymphatic system for the purpose of so nourishing the body that it can continue to function. In other words, it is the aggregate of all processes whereby food is digested, heat and energy created, the body built up or repaired and waste matter excreted. By examination of the rates at which normal persons give off heat, scientists have established the normal rate of metabolism from which, experience has revealed, most persons deviate by not more than 10 per cent. To enjoy good health, one's body must maintain a proper balance of essential chemicals; the thyroid gland is the primary agency in achievement of this end. Excess of the thyroid hormone in the blood stream results in hyperthyroidism and too little in hypothyroidism. The only ingredient of the condemned drug with which the proceeding was concerned is the desiccated thyroid included in the formula. This is derived from the glands of hogs and sheep and has the same effect on one's physical makeup as the hormones produced by a human gland. The potency of desiccated thyroid is roughly proportional to its iodine content. The product here contains approximately 0.3 per cent of organic iodine and thus possesses one and one-half times the potency of that made in accord with the standard of the U. S. Pharmacopeia.

At the trial, continued the court, qualified authorities and specialists in medicine, chemistry and nutrition supplied testimony, somewhat in conflict, relating to the cause and "cure" for obesity, hypothyroidism and hyperthyroidism and to metabolism, as well as proof of the effect of thyroxin on persons suffering from Graves' disease, heart disease, amenorrhea and psychoneuroses. The evidence disclosed that an overdosage of desiccated thyroid produces hyperthyroidism. Indeed, as to this there can be no question, since such medication supplies an excess of the hormone. The record also reveals that medical men are in agreement that one person's tolerance for the drug may be a great deal less than another's. The Raladam Company recognizes this too, since in the circular it warns "No food, drug or other substance which has any physiological effect may be taken internally or applied externally without the possibility of unpleasant or harmful results in some persons if they happen to be constituted so that they do not tolerate the food or other substance. . . . If any unpleasant effects are experienced stop taking Marmola until they disappear." Medical witnesses testified as to further effects of overdosage, such as increased metabolism of the patient, injuriously affecting the functioning of the endocrine glands, kidneys and liver; impairment of bodily functions because of the extra burden placed on human organs; symptoms which cannot be distinguished from those peculiar to hyperthyroidism, such as rapid heart, heart pains, nervous and emotional instability, nausea, menstrual disturbances and serious aggravations which result in persons who consider themselves normal and healthy but are actually subject to such latent diseases as heart disease, diabetes or tuberculosis, when they use desiccated thyroid. Indeed, their testimony is largely to the effect that a daily dosage of 2 grains a day is dangerous to health. Lay witnesses gave vivid reports of the effect of the tablets on their health. Weakness, heart palpitations, amenorrhea, emotional nervous states and domestic difficulties were described as aftermaths of the use of the tablets.

We think, continued the court, that the evidence adduced before the trial court was such as to justify only the conclusion reached by that court and we certainly are not justified in saying that the finding is erroneous as a matter of law. Admittedly, taking four tablets a day is not dangerous to the health of all users, since tolerance for the drug varies; but the

experience of various witnesses, all of whom took tablets according to the directions on the label, as well as the testimony of a number of medical experts, inevitably impels one to the finding that use of the tablets as prescribed is dangerous to the health of the public. The fact that some users may be able to tolerate greater quantities does not militate against the conclusion for the Federal Food, Drug and Cosmetic Act does not require that the drug be dangerous to the health of all who take it in the dosage and for the duration prescribed or recommended. It devolved on the trial court to determine only whether it was proved that the drug is dangerous to the public health at large if used as recommended by its vendors.

The trial court, said the appellate court, further found that the Marmola tablets were subject to condemnation in that they were misbranded because they were falsely represented to be a safe and appropriate remedy for obesity, when in fact they are not, because obesity is not caused by the lack of any substance which Marmola supplies, and in that the labeling did not reveal facts material with respect to possible consequences of use of the tablets under the conditions prescribed, since the instruction to discontinue use of the tablets on appearance of "unpleasant effects" does not prevent the occurrence of more serious symptoms as a result of the hyperthyroidic condition previously precipitated.

The Raladam Company, said the court, attempts to make much of the proposition that the legislative history of the Federal Food, Drug and Cosmetic Act discloses that Congress had no intent to deprive individuals of the right of self medication. This we think beyond the point, for the decision of the lower court deprives no one of this right. It merely determines that Marmola tablets are dangerous to the public health when used in the dosage and with the frequency prescribed by its manufacturers. What would be a nondeleterious prescription was not agreed on by the experts testifying at the trial and was not within the province of the court to decide.

Accordingly, the judgment of condemnation was affirmed—*United States v. 62 Packages, More or Less, of Marmola Prescription Tablets*, 142 F. (2d) 107 (1944).

Society Proceedings

COMING MEETINGS

- Aero Medical Association of the United States, St. Louis, Sept. 4-6. Dr. David S. Brachman, 5440 Cass Ave., Detroit 2, Secretary.
- American Congress of Physical Therapy, Cleveland, Sept. 6-9. Dr. Richard Kovacs, 2 East 88th St., New York 28, Secretary.
- American Hospital Association, Cleveland, Oct. 2-6. Mr. George P. Bugbee, 18 East Division St., Chicago, Executive Secretary.
- American Pediatric Society, Atlantic City, N. J., Sept. 25-27. Dr. Hugh McCulloch, 325 N. Euclid Ave., St. Louis 8, Secretary.
- American Public Health Association, New York, Oct. 3-5. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.
- American Roentgen Ray Society, Chicago, Sept. 24-29. Dr. H. Dahner Kerr, University Hospitals, Iowa City, Secretary.
- Colorado State Medical Society, Denver, Sept. 27-29. Dr. John S. Bouslog, 537 Republic Bldg., Denver 2, Secretary.
- Delaware, Medical Society of, Lewes, Sept. 11-12. Dr. W. O. La Motte, 601 Delaware Avenue, Wilmington, Secretary.
- District of Columbia, Medical Society of the, Washington, Oct. 5-7. Mr. Theodore Wyprud, 1718 M St. N.W., Washington, Secretary.
- Indiana State Medical Association, Indianapolis, Oct. 3-5. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis 4, Executive Secretary.
- International College of Surgeons, U. S. Chapter, Philadelphia, Oct. 3-5. Dr. Desiderio Roman, 250 South 17th St., Philadelphia, Secretary.
- Kentucky State Medical Association, Lexington, September 18-20. Dr. P. E. Blackerby, 620 S. Third St., Louisville, Secretary.
- Michigan State Medical Society, Grand Rapids, Sept. 27-29. Dr. I. Fernald Foster, 2020 Olds Tower, Lansing 8, Secretary.
- Mississippi Valley Medical Society, Peoria, Ill., Sept. 27-28. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.
- National Medical Association, St. Louis, Aug. 14-17. Dr. John T. Given*, 1108 Church St., Norfolk, Va., Secretary.
- Northern Minnesota Medical Association, Hibbing, Aug. 26. Dr. R. N. Jones, 8 Sixth Ave. N., St. Cloud, Secretary.
- Oregon State Medical Society, Portland, Sept. 2-3. Dr. Thomas D. Robertson, St. Vincent's Hospital, Portland, Secretary.
- Pennsylvania, Medical Society of the State of, Pittsburgh, Sept. 19-21. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh 22, Secretary.
- Radiological Society of North America, Chicago, Sept. 24-29. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse, N. Y., Secretary.
- Utah State Medical Association, Salt Lake City, August 24-26. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.
- Wisconsin, State Medical Society of, Milwaukee, Sept. 18-20. Mr. Charles H. Crownhart, 110 E. Main St., Madison 3, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

67:341-428 (May) 1944

Deficiency Anemia in Infants: Report of 2 Cases, with Associated Temporary Deficiency of Antianemic Factor in 1 and Allergic and Abnormal Digestion of Protein in the Other. M. H. Bass.—p. 341.
Serum Phosphatase Activity and Clinical Rickets in Children in Jerusalem. R. Klatmer.—p. 348.

*Cystic Fibrosis of Pancreas: Report of 18 Proved Cases. Maud L. Menten and T. O. Middleton.—p. 355.

Fatal Effects of Prolonged Complete Curarization. M. A. Perlstein and A. Weinglass.—p. 360.

*Studies on Control of Acute Infections of Respiratory Tract: III. Results of Sulfadiazine Therapy from May 3, 1942 to May 2, 1943. M. Siegel.—p. 365.

Serum Tocopherol: Its Relation to Failure of Vitamin E Therapy for Pseudohypertrophic Muscular Dystrophy. A. S. Minot and Helen E. Frank.—p. 371.

Ascorbic Acid, Riboflavin and Thiamine Content of Cow's Milk. A. D. Holmes, C. P. Jones and Anne W. Wertz.—p. 376.

Poliomyelitis: II. Results of Treatment During Acute Stages of Disease. J. A. Toomey and P. M. Kohn.—p. 393.

Cystic Fibrosis of Pancreas.—According to Menten and Middleton children suffering from cystic fibrosis of the pancreas show failure to gain weight, wasting, vomiting, diarrhea or constipation, protuberant abdomen, bulky fatty intestinal contents, cough and terminal bronchopneumonia. They report 18 cases in which diffuse definite dilatation of the pancreatic acini and associated pneumonia were observed at necropsy. A clinical diagnosis of cystic fibrosis of the pancreas was made in 1 child. The 18 cases were gleaned from 640 necropsies performed at the Children's Hospital in Pittsburgh from Jan. 1, 1936 to June 1, 1943 and represent 2.8 per cent of the total number. During the same period celiac disease was diagnosed in 15 cases. Cystic fibrosis of the pancreas was diagnosed in only 3 of the cases during life, largely because of lack of presenting symptoms. No definite causes for the pancreatic changes have been found. It is probable that pancreatic lesions precede the atresia and are the cause and not the result of these rare abnormalities. The theory of fetal inflammation fails because of the absence of inflammatory cells and the presence of normal islet tissue. Congenital syphilis may produce a pathologic picture in the pancreas approximating cystic fibrosis, but other characteristics of this disease are absent. Congenital malformations of the acini or alterations in the pancreatic secretions have not been demonstrated. The fact that there are pathologic changes in accessory pancreatic tissue in the jejunum which are identical with the changes in the main organ argues that intrinsic biochemical alterations in the acinar epithelium are probably a fundamental etiologic factor.

Sulfadiazine in Acute Infections of Respiratory Tract.—Siegel made his observations in an institution for feeble-minded patients among children highly susceptible to infections of the respiratory tract and to secondary bacterial complications. The children varied in age from 2 to 15 years, the average being 8.1 years. A group of about 130 girls lived in cottage Y and an approximately equal number of boys in cottage Iota. New admissions to each cottage replaced withdrawals at the rate of about 1 per week. The duration of residence varied considerably. The children were assigned to the control or to the sulfadiazine treated group in alternate order of admission. The groups were comparable with regard to age, weight, frequency of mongolism and past incidence of pneumonia and other acute infections of the respiratory tract. The children in the two groups were managed alike, except for the use of sulfadiazine in the treated group at the onset of clinical infections of the

respiratory tract. The period of observation lasted from May 1942 to May 1943. During these periods 250 acute infections of the respiratory tract were studied in 130 patients. The results obtained are similar to those noted during the first six months of the study, which were reported previously. The illnesses were milder in the drug treated groups than in the untreated groups, with the exceptions noted in outbreaks of infections presumably of virus origin and in sporadic infections. The beneficial effects were attributed to the bacteriostatic action of sulfadiazine. The differences observed between the untreated and the treated groups varied considerably. Although the severity of the illnesses in the control group fluctuated with the year to year variations in severity of infections prevalent at the time, the infections in the treated group appeared to be relatively mild. The drug seemed to exert a stabilizing effect on the course of acute infections of the respiratory tract. Such an effect might prove to be of value during severe outbreaks of influenza and other respiratory diseases in which drug susceptible bacteria may be primarily or secondarily implicated.

American Journal of Physiology, Baltimore

141:297-438 (May) 1944. Partial Index

Influence of Glucose on Gasping Pattern of Young Animals Subjected to Acute Anoxia. W. A. Selle.—p. 297.

Acid Humoral Control of Heart Beat. R. Gesell, A. Mason and C. R. Brassfield.—p. 312.

*Relationship of Copper to Hematopoiesis in Experimental Hemorrhagic Anemia. A. R. Maass, L. Michaud, H. Spector, C. A. Elvehjem and E. B. Hart.—p. 322.

*Study of Gelatin and Saline as Plasma Substitutes. W. W. Swingle, W. Kleinberg and H. W. Hays.—p. 329.

Mode of Action of Anticoagulant Derived from Tissues. G. J. de Sütö-Nagy.—p. 338.

Comparison of Nutritive Value of Dextrose and Casein and of Effects Produced on Their Utilization by Thiamine. C. P. Richter and Katherine K. Rice.—p. 346.

Blood Picture of Iron and Copper Deficiency Anemias in the Rat. S. E. Smith and Mary Medicott.—p. 354.

Environmental Temperature and Vitamin K Deficiency. C. A. Mills, Esther Cottingham and Marjorie Mills.—p. 359.

Kinetics of Disappearance of Galactose from Plasma After Rapid Intravenous Injection. R. Dominguez and Elizabeth Pomerene.—p. 368.

Changes in Right and Left Coronary Artery Inflow with Cardiac Nerve Stimulation. D. E. Gregg and R. E. Shipley.—p. 382.

Effect of Posterior Hypophysectomy on Renal Hypertension. E. Ogden, E. W. Page and Evelyn Anderson.—p. 389.

Restoration of Renal Hypertension in Hypophysectomized Rats by Administration of Adrenocorticotrophic Hormone. Evelyn Anderson, E. W. Page, C. H. Li and E. Ogden.—p. 393.

Radio Frequency Localization in Acoustic Cortex of the Dog. A. R. Tunturi.—p. 397.

Depressor Effects of Cold on Static Receptors of Labyrinth. E. Spiegel.—p. 404.

Effect of Sodium Thiocyanate on Pressor Action of Renin-like Substance. J. W. Dalton and F. R. Nuzum.—p. 415.

Effect of Sodium and Potassium Chloride on Renal Clearance of Ascorbic Acid. E. E. Selkurt and C. R. Houck.—p. 423.

Mechanism of Sucrose Damage of Kidney Tubules. H. A. Wilmer.—p. 431.

Copper and Hemopoiesis in Experimental Hemorrhagic Anemia.—Maass and his collaborators report studies on young growing dogs which were kept on a raw milk diet supplemented with crystalline B vitamins and manganese and rendered anemic by bleeding. Blood analysis showed a characteristic picture of secondary anemia. The anemia showed no response to dietary supplementation of iron in the absence of copper. The daily administration of 3 mg. of copper brought about an immediate and rapid increase in hemoglobin, hematocrit and red cell counts to normal values. An iron deficiency in the presence of adequate (3 mg.) copper caused a nutritional anemia and a concomitant decrease in mean corpuscular volume. The administration of 10, 20 or 30 mg. of iron with 3 mg. of copper gave the characteristic remission in the anemic dogs.

Gelatin and Saline Solution as Plasma Substitutes.—Swingle and his associates found that the application of a Duncan-Blalock press to one hind leg of a deeply anesthetized dog for seven hours at 750 pounds pressure induced fatal shock in 25 of 26 untreated control animals. The average survival period following release of the press was eleven hours. The shock is characterized by intense hemoconcentration, progressive fall in arterial pressure and loss of plasma. There is an average decline in plasma volume of 48 per cent. The greatly swollen leg indicated that most if not all of the plasma volume decline could be accounted for by plasma loss into the injured area. A

single massive intravenous infusion of gelatin, representing 40 cc. per kilogram, given immediately after removal of the leg press, failed to prevent fatal shock in 10 of 11 dogs. The gelatin was apparently not retained in the circulation but rapidly passed through the injured capillaries of the limb. Six intermittent gelatin infusions of 6.6 cc. per kilogram each, administered over an eight hour interval from the time of removing the leg press, prevented shock in 19 of 26 animals. Intermittent infusions of 0.9 per cent saline solution, administered in equal dosage and over the same time interval as the gelatin, proved to be less effective. Eight of 23 dogs survived, whereas 15 died. Small intermittent infusions of pooled, heparinized dog plasma administered in the same dosage and over the same time interval proved no more effective in preventing shock than similar infusions of gelatin. The authors conclude that intermittent infusions of plasma or plasma substitutes, when given in small amounts over a period of hours, are more effective in preventing shock than is a single massive infusion.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis 28:265-396 (May) 1944

- *Rapid Treatment of Neurosyphilis with Malaria and Chemotherapy. B. Dattner, E. W. Thomas and Gertrude Wexler.—p. 265.
- Canada's First National Venereal Disease Control Conference. D. H. Williams.—p. 286.
- *Induction of Fever by Intravenous Infusion of Triple Typhoid Vaccine in Treatment of Syphilis. H. Lawrence.—p. 289.
- Unusual Behavior of Syphilitic Reagin Following Intensive Treatment of Early Syphilis. A. G. Schoch and L. J. Alexander.—p. 305.
- Epidemic of Genital Chancres from Perversion. H. Goodman.—p. 310.
- Oral Use of Sulfathiazole in Prevention of Gonorrhea and Chancroid. E. E. Keet Jr.—p. 315.
- Primary Cutaneous Gonococcal Lesions of External Male Genitalia. M. M. Kroll and E. M. Cohart.—p. 320.
- Urethral Tyrothricin Irrigations in Male: Experimental and Clinical Study. L. Dub.—p. 325.

Malaria and Chemotherapy in Neurosyphilis.—Dattner and his associates stressed in a previous report the importance of spinal fluid examinations as the most reliable criteria for determining the activity of a syphilitic process in the central nervous system. Symptoms and signs usually associated with dementia paralytica or tabes dorsalis may occasionally be due to other causes than syphilis. In the presence of positive specific tests for syphilis the best available guide to determining the activity of a syphilitic infection of the central nervous system is increase in the cells and protein of the spinal fluid. It has been the policy at Bellevue Hospital since Jan. 1, 1939 to treat all patients whose spinal fluid is actively syphilitic, regardless of the presence or absence of clinical signs and symptoms, with some form of fever in addition to chemotherapy, unless fever is definitely contraindicated by the general condition of the patient. Fever was induced with malaria in all the patients. The number of malarial paroxysms was limited to eight. This was followed immediately by chemotherapy. At first patients were given alternate courses of weekly injections of arsenical drugs followed by bismuth for a period of six months after malaria. Later the authors shortened the period of treatment by giving one injection of 0.06 Gm. of mapharsen daily for ten days following the last fever, while the patient was still in the hospital ward. No significant differences were noted in the two groups. The spinal fluid was examined six months after the completion of therapy. If this showed no more than 4 cells per cubic millimeter and definite reduction in protein content, no further antisyphilitic treatment was given. The patients were kept under observation, and spinal fluids were examined every six months. Patients whose spinal fluids still showed signs of activity six months after treatment were either returned to the hospital wards for retreatment or given some type of chemotherapy. Of the 419 patients who received 424 treatment courses 10 died, 62 are lost and 54 have been treated too recently for evaluation. The report of the results of therapy is limited to 293 patients, or 298 treatment courses. Of the patients who were followed from six to forty-eight months 85.9 per cent showed satisfactory results.

Triple Typhoid Vaccine in Treatment of Syphilis.—According to Lawrence, arsenical toxicity is diminished when fever is given with chemotherapy. The combination of fever and intensive chemotherapy requires less arsenic for the same

therapeutic efficiency than does chemotherapy unaccompanied by fever. Patients who have had arsenical exfoliative dermatitis can tolerate further arsenicals if these are given in combination with fever therapy. The technic employed consisted of a continuous infusion of typhoid vaccine in a saline suspension as described by Solomon and Somkin. The infusion was prepared by adding the selected amount of army triple typhoid vaccine to 1 liter of saline solution, which was then shaken thoroughly. The solution was administered intravenously by an Abbott drip infusion apparatus. When it was clear that fever produced by this technic was well tolerated even when combined with chemotherapy, 0.06 Gm. of mapharsen was given intravenously with every paroxysm of fever in all subsequent treatments. Twice a week, on days on which fever was not given, 0.13 Gm. of bismuth subsalicylate in oil was injected intramuscularly. Forty hours above 104 F. was considered to be the optimum amount of fever for a course. Approximately ten treatments of four hours each above 104 F. was the method by which this was obtained. To date 10 patients have been treated by the infusion of triple typhoid vaccine without serious complication. No manifestations appeared of tetany, cerebral edema, dehydration or cardiac failure. The two instances of vasomotor collapse responded readily to corrective measures. Antisyphilitic therapy with arsenicals can be given at the height of the fever; this is not possible in malaria therapy. The necessity of continuously administering oxygen, as recommended in the use of a fever cabinet, was eliminated. It was gratifying to be able to maintain a patient for eight hours between 104 and 106 F. during the day and see him up and about the ward that evening. Because of its simplicity this technic of inducing fever is especially suited to army facilities.

Annals of Surgery, Philadelphia

119:641-800 (May) 1944

- Surgical Lesions of Facial Nerve, with Comments on its Anatomy. C. C. Coleman.—p. 641.
- Diverticula of Urinary Bladder. E. Burns.—p. 656.
- *Thyroid Carcinoma with Metastases Studied with Radioactive Iodine. V. K. Frantz, R. P. Ball, A. S. Keston and W. W. Palmer.—p. 668.
- Modified Technic in Skin Grafting of Extensive Deep Burns. H. Saltzstall and W. E. Lee.—p. 690.
- Further Experience with Treatment of Burns with Sulfonamide Impregnated Membranes. W. DeW. Andrus and J. A. Dingwall III.—p. 694.
- *Primary Hemangiomas Tumors of Skeletal Muscle. T. A. Shallow, S. A. Eger and F. B. Wagner.—p. 700.
- Acute Retroperitoneal Abscess and Phlegmon. H. Neuhoef and E. E. Arnheim.—p. 741.
- *Annular Pancreas Producing Duodenal Obstruction. R. E. Gress and T. C. Chisholm.—p. 759.
- Conservative Treatment of Acute Duodenal Fistula. M. J. Thorstad.—p. 770.
- Rare Abnormality of Bile Ducts: Antroduodenal Position of Cystic Duct. P. Campiche.—p. 774.
- Treatment of Horseshoe Kidneys. O. S. Culp.—p. 777.
- Wilms Tumor in a Horseshoe Kidney. E. L. Eliason and L. W. Stevens.—p. 788.
- Crude Penicillin: Its Preparation and Clinical Use Externally. Charlotte Dunayer, Lillian Buxbaum and Hilda Knobloch.—p. 791.
- Postoperative Chronic Progressive Gangrene of Abdominal Wall. M. Davidson, B. G. Sarnat and E. Lampert.—p. 796.

Radioactive Iodine in Thyroid Carcinoma.—Frantz and his associates reported in 1942 an instance of storage of radioactive iodine in a metastasis from a thyroid carcinoma. They now present a completed report of this case, observed until death. When the radioactive isotope of iodine became available, it afforded an easy method of checking iodine storage in metastases from thyroid carcinoma. The radioactive iodine produced by the cyclotron is mixed with inert iodine compounds such as potassium iodide and is usually administered by mouth. The patient, a Negro woman aged 39, first complained of swelling of the neck of seven years' duration in 1934. At this time a vascular tumor was removed from the isthmus of the thyroid. In 1941, seven years after operation and fourteen years after the tumor was first noticed, the patient sustained a pathologic fracture of the left humerus. A roentgenogram showed areas of bone destruction in the shaft of the humerus near the deltoid tubercle, and a small fracture line on the medial border. There was a soft, pulsating oval tumor about 8 cm. in diameter projecting 4 cm. above the scalp in the region of the left parietal bone. Further roentgenograms showed areas of bone destruc-

tion in the lower end of the right femur and in the left parietal bone. Roentgen irradiation was applied to the lesion of the humerus and later to the thigh and to the tumor of the parietal bone. Roentgen treatment of the latter two regions was interrupted for the administration of a tracer dose of radioactive iodine, which was given orally in water. The substance was taken up, as shown by the Geiger counter, in considerable quantity by the metastasis in the right femur and by the thyroid but not by the other bony metastases. It was suggested that a larger dose might afford selective therapeutic "internal irradiation," and 10 millicuries was given. The right femoral metastasis showed no change in radioactive iodine content during the first week, but when measured again at the end of three weeks it showed loss of 85 per cent of its radioactive iodine. A tracer dose given a few days later showed no further uptake by the metastasis, although there was new localization in the thyroid. This was interpreted at the time as evidence of the effectiveness of this "internal irradiation." The patient died. At necropsy the bulk of the metastatic tissue was undifferentiated. The metastasis which showed consistent uptake of iodine was the only one which grossly resembled thyroid tissue and which microscopically showed well differentiated tumor. The authors know of no evidence that external irradiation of thyroid carcinoma may change the microscopic character of the tumor. They believe that two types of tumor were present. There was no uptake of radioactive iodine in most of the lesions. Since some well differentiated tumors of the thyroid are capable of storing iodine, it is thought that in selected cases therapeutic internal irradiation of metastases may be achieved with large enough doses of radioactive iodine. Tracer doses of iodine may be valuable diagnostically. Failure of uptake does not mean that the tumor is not of thyroid origin.

Primary Hemangiomatous Tumors of Skeletal Muscle.

—Shallow and his associates report 2 cases of primary hemangiomatous tumors of skeletal muscle. A woman aged 35 noted over a period of five years a slowly growing mass on the lateral aspect of her left thigh which pulsed, had a bruit and was unassociated with any symptoms except slight pain. Temporary ligation of the left common iliac artery was followed up by wide excision of a partially circumscribed hemangioendothelioma involving three contiguous muscles. Postoperative high voltage roentgenotherapy was given. Complete recovery ensued without loss of function. The second patient was a boy aged 10 years who noticed a lump on the inner aspect of his right arm following trauma. The lump increased in size and became painful. Physical examination revealed a soft, tender, walnut sized mass over which a bruit could be heard. A cavernous hemangioma involving the medial head of the triceps muscle was removed at operation. During the next two years a mass gradually appeared on the posterior aspect of the arm, accompanied by pain and limitation of extension of the forearm. Wide excision was followed by primary wound healing and complete restoration of function. The author presents an analytic review of 335 cases of primary hemangiomatous tumors of skeletal muscle. The disease occurs about equally in the two sexes and most frequently (85 per cent) during the first three decades of life. The prevailing view is that hemangiomas are congenital tumors originating from abnormal embryonic sequestrations of vascular tissue. Trauma and systemic infection, acting as secondary factors, may modify subsequent growth. The lesion arises in the vascular plexus of the muscle or in the perimysium between the muscle fibers and often resembles a muscle containing varicose veins. The tumor consists of vascular elements in a connective tissue stroma and is classified as cavernous, capillary, venous or arterial. Although pure types seldom exist, the cavernous variety is the most common. Growth is by a multicentric proliferation of endothelial cells forming vascular channels with practically no tendency to anastomose with the normal vessels in the invaded tissue. There are no proved cases of metastasis from a primary muscle hemangioma. The diagnosis was correctly made in only 19 per cent of the cases. The history usually reveals a clinical onset early in life, often following trauma to the part. The thigh is most commonly involved, especially the quadriceps femoris muscle.

The diagnosis may be confirmed by aspiration of blood from the tumor and by the presence of phleboliths on roentgenologic examination. Angiography may also be employed as an adjunct in diagnosis. The procedure of choice in treatment is early complete surgical excision well beyond the confines of the tumor. This was the treatment employed in 79 per cent of the cases, with improvement or cure in 90 per cent. In cases in which malignant degeneration is suspected, postoperative high voltage roentgenotherapy is advocated. There was no surgical mortality. Local recurrence or lack of improvement was reported in 6 per cent of the cases and postoperative deformity in 4 per cent.

Annular Pancreas Producing Obstruction.—A newborn infant with evidence of duodenal obstruction came recently under the care of Gross and Chisholm. Roentgenologic examination with the child in the recumbent position showed some dilatation of the stomach and a bubble of gas in the right upper quadrant of the abdomen, which was assumed to be air in a dilated first portion of the duodenum. No gas could be found in any other part of the abdomen. These findings were interpreted as representing a complete obstruction of the duodenum. The malformation was found at operation. The authors left the local abnormality undisturbed and performed a side to side duodenojejunostomy. The jejunum was brought upward and laid against the anterior wall of the dilated first portion of the duodenum so that an isoperistaltic type of anastomosis could be established. The baby was discharged from the hospital on the sixth postoperative day. There was no vomiting; she was taking her feedings well. Subsequent development of the child has been normal. The constriction of the duodenum is not always sufficient to cause clinical symptoms. If symptoms of duodenal obstruction appear they should be relieved by surgical correction. Operative alleviation of the obstruction has been practiced by (1) division of the pancreatic ring, (2) posterior gastroenterostomy or (3) duodenojejunostomy. The authors believe that the first procedure is the least desirable and that the last one is the operation of choice. The case described is the only one which has ever been treated by this method.

Archives of Neurology and Psychiatry, Chicago

51:415-500 (May) 1944

- Electromyography as Method for Determination of Level of Lesions in Spinal Cord. P. F. A. Hoefler and S. A. Guttmann.—p. 415.
Incidence of Metastases to Nervous System. M. Neustaedter.—p. 423.
*Torular Granuloma Simulating Cerebral Tumor: Report of 2 Cases. H. S. Swanson and W. A. Smith.—p. 426.
The Scalenus Anticus Syndrome: Types; Their Characterization, Diagnosis and Treatment. R. L. Swank and F. A. Simeone.—p. 432.
Effect of Glutamic Acid and Other Amino Acids on Maze Learning in White Rat. F. T. Zimmerman and S. Ross.—p. 446.
Eosinophilic Granuloma of Bone Presenting Neurologic Signs and Symptoms: Report of Case. R. L. Osborne, E. D. Freis and A. G. Levin.—p. 452.
Androgen Therapy for Involutional Melancholia. L. Danziger, H. T. Schroeder and A. A. Unger.—p. 457.
*Specific Treatment of Psychosis Due to Estrogen Deficiency. L. Danziger.—p. 462.
Biochemical Studies on Patients with Schizophrenia: Dextrose, Oxygen and Carbon Dioxide Contents of Arterial and Venous Blood from Cranial Cavity. S. Katzenellenbogen, R. J. Haws and Rebecca Snyder.—p. 469.
Cerebral Metabolism in Hypoxia. E. S. Gurdjian, W. E. Stone and J. E. Webster.—p. 472.

Torular Granuloma Simulating Cerebral Tumor.—Swanson and Smith state that, although meningitis is emphasized as a common lesion of torular infections, it is not generally recognized that torulosis of the brain may simulate an intracranial tumor. The authors describe 2 cases of this type. A woman aged 49 was admitted to the hospital in the terminal stage of a progressive disease suggestive of an expanding intracranial lesion. She died before operation could be carried out. Necropsy showed three distinct, large, isolated tumor masses in the brain which grossly suggested metastatic colloid carcinoma. Microscopic studies revealed the true nature of the disease process. The second patient, a white man aged 36, had a history of proved torular infection of the lung. He presented the clinical picture of increased intracranial pressure, with localizing signs pointing to the posterior fossa. The presence of an infection of the central nervous system similar to that in the

preceding case was considered, but repeated studies of the spinal fluid showed that the cell count and the sugar content were normal and cultures negative for the organism. This indicates that changes in the spinal fluid may not appear for weeks after the onset of symptoms. In 2 typical instances of meningitis recently encountered the organisms were grown with ease from the spinal fluid as well as from the blood, urine and sputum. Roentgenographic examination of the chest showed no demonstrable lesions in either of these cases or in case 1 of this report. Roentgenographic examination of the chest is advisable in all cases in which cerebral tumor is suspected, and it may occasionally give a clue to torular infection. The cerebral lesion of torulosis may resemble a glial tumor; only section of the "tumor" reveals the characteristic appearance of a multiloculated cyst filled with gelatinous material. This "tumor" is unlike true cystic tumors in that the cavities do not empty themselves when opened. This is the most striking feature of the torular granuloma. The tendency to isolation and sharp demarcation from the adjacent cortex, together with the absence of reaction in the surrounding tissue, is another striking feature of torular granuloma, but there exists the danger that the cyst will be opened unawares and meningitis initiated. The authors believe that this was done in case 2.

Treatment of Psychosis Due to Estrogen Deficiency.—Danziger presents an analysis of 164 cases of involuntional melancholia in which estrogen therapy was employed. Among these 164 women there were probably many in whom the psychosis developed either before or many years after the onset of the menopause. Such patients could not reasonably be supposed to be suffering from a psychosis due to estrogen deficiency and could not reasonably be expected to recover with estrogen therapy. The author classifies the patients into two groups, depending on whether estrogen deficiency was or was not involved. With patients whose psychosis was due to estrogen deficiency large doses of estrogen gave better results than small doses. Where psychosis was not clearly attributed to endocrine disturbances, the results did not vary with the dose. With patients in the first group, large doses gave results of the order of magnitude to be expected from specific therapy. With patients in the second group, results to be expected from specific therapy were never attained regardless of the dose. Although the two groups were not homogeneous as to the cause of their psychosis, they were both grouped according to the Statistical Manual of the National Association for Mental Hygiene under "involuntional melancholia." The author suggests that the term "involuntional melancholia" be replaced by "psychosis due to estrogen deficiency." In the absence of accurate evidence of disturbances in the climacteric immediately preceding the psychosis, the chances of recovery with estrogen therapy are not better than even, although the clinical picture may be that of involuntional melancholia. If such patients are given estrogen therapy, their chances of prompt improvement are much better than if they do not receive special treatment.

Archives of Pathology, Chicago

37:297-350 (May) 1944

- Foam Cell Plaques in Intima of Irradiated Small Arteries (100 to 500 Microns in External Diameter). J. F. Sheehan.—p. 297.
 Maduromycosis of Hand, with Special Reference to Heretofore Undescribed Foreign Body Granulomas Formed Around Disintegrated Chlamydispores. D. Symmers and A. Sporer.—p. 309.
 Studies in Vitro on Physiology of Normal and of Cancerous Cells: II. Survival and Glycolysis of Cells Under Aerobic and Under Anaerobic Conditions. R. Schrek.—p. 319.
 New Method of Feeding Cholesterol to Animals. O. J. Pollak.—p. 337.
 Automatic Staining of Routine Tissue Sections with Hematoxylin and Eosin. M. N. Richter.—p. 338.

California and Western Medicine, San Francisco

60:233-272 (May) 1944

- Medical Care of Migratory Agricultural Workers: Story of Accomplishment; Presidential Address. K. L. Schaupp.—p. 238.
 Public Opinion Concerning Medical Practice: An Interpretative Report on a California Survey. J. R. Little.—p. 241.
 California Procurement and Assignment Service. E. M. Pallette.—p. 245.
 Open Sesame! On Postgraduate Schooling. M. Wolfson.—p. 246.
 Anesthesia for Military Needs. L. K. Mantell and C. F. McCuskey.—p. 247.
 Dehydrated Food in War and Peace. F. DeEds.—p. 250.

Diseases of Chest, Chicago

10:171-276 (May-June) 1944

- Primary Atypical Pneumonia Simulating Infiltrative Pulmonary Tuberculosis. A. L. Kruger, A. W. Wallace, J. P. Medelman and S. B. Grimes.—p. 171.
 Mechanism of Hypertrophic Pulmonary Emphysema. I. Gordon.—p. 180.
 Tuberculosis in Children and Young Adults. C. A. Stewart.—p. 190.
 Occurrence of Pulmonary Tuberculosis in Supposedly Screened Selectees. A. Freer.—p. 197.
 Tuberculosis as Navy Problem. D. F. Smiley and H. A. Raskin.—p. 210.
 Study of Rejectees for Thoracic Abnormalities. W. A. Hudson and D. S. Brachman.—p. 234.
 *Problem of Tuberculosis in Apparently Healthy Man as Shown in Routine Examinations for Induction into Armed Forces. C. H. Marcy.—p. 241.
 Postwar Teaching of Tuberculosis. C. M. Hendricks.—p. 246.

Tuberculosis in Routine Examinations for Induction.

—Marcy points out that the requirement of a routine chest roentgenogram by military authorities has resulted in the biggest tuberculosis case finding program ever attempted. The government has set a high standard of disqualifying lesions in its determined effort to keep tuberculosis at a minimum in the armed forces. The disqualified men are reported to the state health departments and then referred to their family physicians or to tuberculosis clinics for further observation and treatment. The rejectees fall into three groups. The first group includes those with minimal healed disease, probably not of clinical significance but of a degree not acceptable to the Army. In most instances they can return to their regular occupations. Such a diagnosis of tuberculosis without a detailed explanation of its significance is unfair to the men examined. In order to dispel any undue fear, they must be given an explanation of their condition. The second group is made up of men with a disease of undetermined stability. A history must be taken in order to discover whether the patient is being exposed to tuberculosis. Also previous unexplained hemoptysis or recurring pleurisy is of possible significance. Cough, expectoration, fatigue, lack of endurance and gradual loss in weight must be taken into account. Localized rales in the upper lung areas are important. Age is extremely important. Apparently healed primary tuberculosis is less significant in a man beyond 40 than it is in a youth of 18 years. Nutrition, social status, environment, habits of living and the nature of his employment together with the amount of rest must be considered. Some may need a preliminary period of hospital study, but most of them can continue at home under the guidance of their own physician. In many cases it is merely a question of establishing their work tolerance. The third group is composed of those with active tuberculosis. The majority are in an infectious stage and should have hospital care. Unless the medical profession takes an intelligent interest in the men disqualified by the military authorities because of tuberculosis, this effective case finding procedure will lose much of its value as applied to the prevention and control of tuberculosis in the civilian population.

Journal of Immunology, Baltimore

48:271-334 (May) 1944

- Studies on Penicillin: II. Observations on Therapeutic Activity and Toxicity. G. Rake, Clara M. McKee, Dorothy M. Hamre and C. L. Houck.—p. 271.
 Protection of Developing Chick Embryo with Specific Serum Against Infection with Shigella Paratyphenteriae (Flexner). A. J. Weil and J. A. McFarlane.—p. 291.
 Production of Antibrain Antibodies in Monkey. L. M. Kopeckoff and N. Kopeckoff.—p. 297.
 Influence of Temperature of Incubation on Increase of Influenza Virus B (Lee Strain) in Chorionicallantoic Fluid of Chick Embryos. I. W. McLean Jr., Dorothy Beard, A. R. Taylor, D. G. Sharp, J. W. Beard, A. E. Feller and J. H. Dingle.—p. 305.
 Volume Change Accompanying Quellung Reaction of Pneumococci. F. H. Johnson and W. L. Dennison.—p. 317.
 *Effect of Paraffin Oil, Lanolin-like Substances and Killed Tubercle Bacilli on Immunization with Diphtheric Toxoid and Bact. Typhosum. J. Freund and Mary V. Bonanto.—p. 325.

Effect of Liquid Petrolatum, Lanolin-like Substances and Killed Tubercle Bacilli on Immunization Procedures.—Freund and Bonanto found that when rabbits receive injections of diphtheric toxoid incorporated in a lanolin-like substance, antitoxin formation is enhanced and prolonged as compared with antitoxin production after the injection of plain toxoid. The lanolin-like substance sustains antitoxin formation more effectively than alum. When an aqueous suspension of

killed typhoid bacilli is mixed with a lanolin-like substance and liquid petrolatum the bacteria are found in microscopic water droplets surrounded by oil. Preparations of this kind are stable. Liquid petrolatum enhances and sustains antibody formation against typhoid bacilli for a remarkably long time. Killed tubercle bacilli have an additional synergistic effect. Peanut oil has scant or no effect when compared with liquid petrolatum.

Journal-Lancet, Minneapolis

64:173-214 (June) 1944

- Nutrition in Geriatric Medicine. E. L. Tuohy.—p. 173.
Abdominal Surgery in Old Age Including Comment on (1) Use of Sippy; (2) Safety of Multiple Simultaneous Operations; (3) Mechanism of Development of Bed Sores. O. H. Wangersten.—p. 178.
Anesthesia for the Aging and Aged. R. T. Knight and J. W. Baird.—p. 183.
Cardiovascular Deterioration. H. L. Ulrich.—p. 186.
The Radiologist Looks at Aging Bones. E. H. Skinner.—p. 189.
Mental Disorders of Old Age. H. D. Palmer.—p. 192.
Eye Problems in the Aged. H. W. Grant.—p. 199.
Teeth and Aging. B. N. Pippin.—p. 203.
Tuberculosis in Elderly People. A. T. Laird.—p. 208.

Journal of Neurophysiology, Springfield, Ill.

7:151-204 (May) 1944

- Hind Brain and Early Development of Behavior in Frogs. G. H. Wang and T. W. Lu.—p. 151.
Reflex Inhibition of Intestinal Motility Mediated Through Decentralized Prevertebral Ganglia. A. Kuntz and G. Saccomanno.—p. 163.
Experimental Hypoguesia From Horsley-Clarke Lesions of Thalamus in Macaca Mulatta. H. D. Patton, T. C. Ruch and A. E. Walker.—p. 171.
Structural Identity of Pain Spot in Human Skin. G. H. Bishop.—p. 185.
Physiological Neurography of Some Corticocortical Connections in Chimpanzee. H. W. Carol and W. S. McCulloch.—p. 199.

Journal of Pediatrics, St. Louis

24:483-602 (May) 1944

- *Prophylactic Use of Sulfanilamide in Children with Inactive Rheumatic Fever. Katherine G. Dodge, Janet S. Baldwin and M. W. Weber.—p. 483.
Rheumatic Fever and Rheumatic Heart Disease in Los Angeles Children: Hospital Study. D. B. Davis and S. Rosin.—p. 502.
Rheumatic Pericarditis with Effusion in Patients Under 2 Years of Age. G. N. Krost.—p. 514.
Comparison of Diets of School Children in New York City in 1917 and 1942. Charlotte J. Evans and Rose Lubschez.—p. 518.
Seasonal Variations in Weight, Height and Appearance of Ossification Centers. E. L. Reynolds and L. W. Sontag.—p. 524.
Acute Ataxia of Unknown Origin in Children. W. O. Klingman and R. G. Hodges.—p. 536.
Ratbite Fever Caused by Streptobacillus Moniliformis: Case Report. E. Rosen and B. S. Denzer.—p. 544.
*Treatment of Pneumonia with Single Dose of Sulfadiazine. H. Vollmer, C. Abler and D. A. Rosenberg.—p. 553.
Chondrodystrophia Calcificans Congenita. M. P. Borovsky and J. Arendt.—p. 558.
Meningitis Due to Salmonella Oranienburg: Report of Case. C. H. Hollis and E. W. Barron.—p. 568.
Bezoar Causing Intestinal Obstruction. R. P. Forbes.—p. 574.
Staphylococcus Empyema in Infants and Children: Review of 29 Cases. C. M. Riley.—p. 577.

Prophylactic Use of Sulfanilamide in Inactive Rheumatic Fever.—Dodge and her associates administered sulfanilamide at Bellevue Hospital to 88 patients ranging in age from 6 to 18 years during the fall, winter and spring months for a total of 181 patient-seasons. Seven children received the drug for four seasons, 19 for three seasons, 48 for two seasons and 30 for one season. The children were given from 1 to 2 Gm. of sulfanilamide daily. One hundred and one rheumatic children were observed as controls for 138 patient-seasons. Toxic drug reactions were minimal. The drug was not discontinued permanently in any case for such a reaction. During the period of the study there were in the control group 54 hemolytic streptococcus infections, an incidence of 39 per cent. There were 19 definite major rheumatic relapses (with two deaths) and 7 mild or possible relapses. In 3 children the rheumatic process remained active throughout the period of observation, and there was one death from subacute bacterial endocarditis. In contrast to this, only 5 hemolytic streptococcus infections occurred in the group of children receiving sulfanilamide prophylaxis, an incidence of 2.7 per cent. Two children, or 1.1 per cent of the patient-seasons of prophylaxis, developed definite rheumatic relapses while taking the drug regularly. Two other children with severely damaged hearts died of congestive failure without evidence of streptococcal infection or active rheumatic disease. Two children with recently active rheumatic fever

showed signs of increasing rheumatic activity within two weeks of starting the drug. The authors concluded that the effectiveness of sulfonamide prophylaxis in quiescent rheumatic fever is established and that it should be applied more widely among groups of highly susceptible individuals.

Single Dose of Sulfadiazine in Pneumonia.—Alternate children admitted with pneumonia were treated with single doses of sulfadiazine, while the others were treated with a regular course of sulfadiazine. Twenty-five children ranging in age between 8 months and 10 years were treated with a single dose. With one exception, sulfadiazine was given by mouth in a single dose of not less than 0.15 Gm. per kilogram of body weight. Smaller children weighing up to 20 Kg. received relatively higher doses, from 0.2 to 0.3 Gm. per kilogram of body weight. The maximal dose was 5.0 Gm. of sulfadiazine. Fluid was forced during the days after the administration of the drug, but no sodium bicarbonate was given. The control group of 23 children were treated with 0.2 Gm. of sulfadiazine per kilogram of body weight for the first days, followed by 0.1 Gm. per kilogram of body weight daily in divided doses and continued until the temperature was normal for two days. The authors found that uncomplicated pneumococcal pneumonia in children seems to respond as promptly to a single dose of sulfadiazine as to continued doses of this drug. The temperature dropped to normal in from four to ninety-six hours, or an average of 38.4 hours, following the single dose, and in from six to one hundred hours, or an average of 40.1 hours, when a full course of sulfadiazine was given. No toxic manifestations appeared following the single dose treatment. It is simpler and less expensive, and it may decrease the risk of toxic manifestations and sensitization to the drug. Three patients with pneumonia complicated by otitis media did not respond to the single dose treatment. The single dose treatment is not recommended for hospitalized, serious or complicated cases of pneumonia, but as an expedient for ambulatory cases or occasions when proper care is lacking.

Kentucky Medical Journal, Bowling Green

42:153-190 (June) 1944

- Thrombophlebitis and Pulmonary Embolism. A. W. Allen.—p. 160.
Rh Factor and Erythroblastosis Fetalis. Louise G. Hutchins.—p. 165.
Rh Factor. W. M. German.—p. 167.
Treatment of Carcinoma of Prostate. L. Atherton.—p. 169.
Renal Pathology Following Use of Sulfa Drugs. E. S. Greenwood.—p. 174.
Treatment of Urologic Conditions Resulting from Administration of Sulfonamides. O. Grant.—p. 178.
Study of 46 Cases of Poliomyelitis. E. P. Scott and G. R. Rowntree.—p. 182.
Diabetic Gangrene of Nasal Septum and Diabetic Coma in a Woman 66 Years Old. F. G. Speidel.—p. 184.

Medical Annals of District of Columbia, Washington

13:167-212 (May) 1944

- "Beyond the Call of Duty." A. A. Vandegrift.—p. 167.
Correctible Defects at Selective Service Age. L. G. Rowntree.—p. 170.
Pulmonary Embolism and Infarction: Clinical and Postmortem Study of 50 Cases. S. Katz and B. J. Walsh.—p. 178.
Role of Private Physician and of Voluntary Agency in Control of Tuberculosis. P. P. McCain.—p. 190.

Missouri State Medical Assn. Journal, St. Louis

41:91-108 (May) 1944

- Study of Nephrosis. W. H. Graham.—p. 91.
Diaphragmatic Hernia in Infancy: Report of Successfully Operated Case. J. G. Probst and J. Diamond.—p. 95.

41:109-130 (June) 1944

- Control Factors in Surgery of Cancer Patients. E. D. Sugarbaker.—p. 112.
Committee on Postwar Planning: Preliminary Report and Plea. M. P. Neal.—p. 116.

Nebraska State Medical Journal, Lincoln

29:165-200 (June) 1944

- President's Address. A. L. Cooper.—p. 169.
Medical Education of Today and Its Effect on the Future of Medicine. E. J. Carey.—p. 172.
Debt of a Graduate in Medicine. E. V. Allen.—p. 178.
I May Be Sued for Malpractice If . . . ? R. W. Fouts.—p. 182.
In Case of Accident "Splint 'Em Where They Lie." J. E. M. Thomson.—p. 185.
Voluntary Nonprofit Prepayment Sickness Insurance. A. J. Offerman.—p. 187.

Oklahoma State Medical Assn. Jour., Oklahoma City**37:193-238 (May) 1944**

- *Clinical Observations in Use of Penicillin. E. R. Denny, P. L. Shallenberger and H. D. Pyle.—p. 193.
Cancer of Prostate. A. R. Sugg.—p. 206.
Congenital Defects of Sternum, with Report of a Case. J. F. Burton.—p. 210.

Clinical Observations in Use of Penicillin.—In accordance with a suggestion of the Surgeon General's Office, a board of medical officers consisting of men from the medical, surgical and orthopedic services and the hospital bacteriologist was appointed for the purpose of selecting patients for treatment with penicillin and for evaluating its effect. Denny and his collaborators found it most practicable to treat the majority of patients in a special penicillin ward. The drug is kept in the ward in refrigerators, the temperatures of which are maintained at approximately 4 C. Fresh solutions are made up each day with pyrogen free isotonic solution of sodium chloride. The intramuscular administration is the method of choice in most cases because of its simplicity. A technician can be trained to give the treatments, less supervision is required, and the majority of infections respond satisfactorily. For local application a solution containing 100 to 250 units of penicillin per cubic centimeter is prepared with isotonic solution of sodium chloride as a solvent. When practicable, wet dressings are applied to the wound and are overlaid with an impervious material. The authors analyze 276 cases treated by them. Penicillin appears to be highly effective in the treatment of sulfonamide resistant gonorrhea, as evidenced by the fact that 98.7 per cent of 243 patients were cured with 50,000 and/or 100,000 units. There was a satisfactory response to penicillin in all patients suffering from infections caused by streptococci of the beta and alpha types, and pneumonia caused by the pneumococcus. Infections due to *Staphylococcus aureus* responded satisfactorily in those whose lesions were superficial, in whom adequate drainage was instituted or in whom the disease was relatively acute, but in those in whom drainage was incomplete or in whom a foreign body or sequestrum existed the results have been unsatisfactory. No conclusion can be drawn from the authors' observations in the treatment of acute rheumatic fever in view of the fact that relatively small doses were used in 4 patients. Clinical and bacteriologic observations indicate that penicillin is highly effective in the treatment of Vincent's infection.

Public Health Reports, Washington, D. C.**59:609-636 (May 12) 1944**

- Organization of Medical and Sanitary Program, Alaska Highway Project. E. H. Carnes.—p. 609.
Pathologic Changes in Sheep Resulting from Exposure to Low Barometric Pressures. J. W. Miller.—p. 618.
Sickness Absenteeism Among Industrial Workers, Final Quarter of 1943, with Note on Occurrence of Respiratory Diseases, 1934-1943. W. M. Gafafer.—p. 620.

59:637-668 (May 19) 1944

- Chemotherapy of Burns and Shock: VI. Standardized Hemorrhage in Mouse; VII. Therapy of Experimental Hemorrhage. H. Tabor, H. Kabat and S. M. Rosenthal.—p. 637.

59:669-700 (May 26) 1944

- *Studies in Trichinosis. XVI. Epidemiologic Considerations Based on Examination for Trichinae of 5,313 Diaphragms from 189 Hospitals in 37 States and District of Columbia. W. H. Wright, L. Jacobs and A. C. Walton.—p. 669.

Epidemiologic Aspects of Trichinosis.—Wright and his associates reported in a previous communication the findings of trichinae in the examination of diaphragm material from 5,313 necropsies in various parts of the United States. Of these, 855, or 16.1 per cent, were positive for this parasite. They find no correlation between trichina infection and sex, civil or military status, past military service, occupation, mental hospitalization, urban or rural residence, or social-economic status. The 5,313 cases included 769 persons of foreign citizenship or whose names indicated foreign extraction, of whom 181, or 23.5 per cent, were infected. Persons in the German and Italian groups totaled 380, of whom 109, or 28.7 per cent, were infected. A comparison of these figures with an incidence of 15.6 per cent in 4,219 American Negroes and white persons of English-Scotch-Irish descent would seem to indicate that persons of foreign extraction are more frequently exposed to trichinosis.

This applies only to persons in the German and Italian troops, since the infection rate in other foreigners was not significantly different than that for the group as a whole. Represented were 235 Jews, of whom only 5, or 2.1 per cent, were infected. Of the 855 positive cases 245, or 28.7 per cent, exhibited infections with live larvae, 142, or 16.6 per cent, infections with mixed live and dead larvae and 468, or 54.7 per cent, infections with dead larvae. There is evidence that death of the larvae may occur within a few years after infection. Within the continental limits of the United States exposure to trichinosis is nearly uniform in degree regardless of geographic or environmental factors. Control measures therefore must be enacted on a nationwide basis.

Radiology, Syracuse, N. Y.**42:319-424 (April) 1944**

- Kidney Tumors: Classification, Review of Symptoms, Methods of Diagnosis, Therapy and End Results. W. E. Howes.—p. 319.
Malignant Tumors of Kidney: Review of 117 Cases. L. C. Bixler, K. W. Stenstrom and C. D. Creevy.—p. 329.
Diagnostic Value of Pneumoperitoneum. J. R. Maxfield Jr. and A. J. McIlwain.—p. 346.
Responsibility of Roentgenologist in Wartime Duodenal Ulcer Problem. M. Feldman.—p. 356.
Primary Malignant Neoplasm of Shoulder Joint, with Report of Case. H. A. Olin.—p. 359.
Nomographic Aids in Calculating Radium Dosage for Plane and Point Sources. B. S. Wolf.—p. 368.
Roentgen Detection in Army General Hospital of Chronic Diseases Not Excluded by Induction Boards. L. M. Pascucci.—p. 375.
Value of Delayed Examination in Pyelography. E. C. Osgood.—p. 380.
Aortic Arch and Cardiac Mensuration. D. E. Ehrlich.—p. 382.
Training of X-Ray Technicians at School for Medical Department Enlisted Technicians. W. W. McCaw.—p. 384.
*Congenital Absence of Lung Diagnosed Before Death. E. R. Deweese and J. C. Howard Jr.—p. 389.

Congenital Absence of Lung.—Agenesis of the lung is a definite clinical entity. Its early recognition will give the patient a much better chance for life. Diagnosis may be made on the basis of x-ray examination, injection of iodized oil and bronchoscopy. Schneider has differentiated three main types of pulmonary agenesis. The first type is a true aplasia with no trace of lung, bronchus or vascular supply on the affected side. The second type is characterized by a small outpouching from the trachea, with rudimentary bronchus. In the third type the bronchus is fully formed but ends in a fleshy mass of areolar tissue of varying amount. The different types of pulmonary agenesis may be explained on an embryologic basis. The left lung seems to be absent more frequently than the right lung. The incidence of the condition is about the same in the two sexes. The authors report a case of pulmonary agenesis which represents the second one of this type of congenital defect seen at their hospital during the last six years. The patient was a boy aged 6 months. The admission diagnosis was atelectasis of the right upper lobe. Roentgenographic and bronchographic examination revealed that no air was entering the right lung, but the findings were considered not inconsistent with a true agenesis of the right lung. The child's condition became much worse and death occurred. Necropsy revealed no lung at all on the right side.

Review of Gastroenterology, New York**11:149-222 (May-June) 1944**

- Anomalies of Digestive Tract. W. Nimeh.—p. 165.
Gastroenteric Reflexes, Normal and Pathologic, as Noted by Means of Stimulation with Sodium Sulfate, with Special Reference to Post-operative Symptoms in Chronic Appendicitis. J. Carrere.—p. 169.
New Test for Gastric Function with 2-Benzil 4-5 Imidazole. J. Nasio.—p. 174.
Primary Duodenal Diverticula: Review of Recent Literature; Report of Case with Severe Hemorrhage. L. L. Frank.—p. 179.

Tennessee State Medical Assn. Journal, Nashville**37:147-182 (May) 1944**

- Voluntary Nonprofit Prepayment for Health Care. J. R. Mannix.—p. 152.
Local Treatment of Burns. O. G. Nelson.—p. 159.

37:183-214 (June) 1944

- Recent Progress in Industrial Health. C. M. Peterson.—p. 183.
Contribution of Medical Profession to War Effort. J. L. Cook.—p. 190.
Tube Feeding. O. S. Hawk.—p. 190.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London
25:1-26 (Feb.) 1944

Distant Tumors Produced by 2-Amino- and 2-Acetyl-Amino-Fluorene. F. Bielschowsky.—p. 1.

Occurrence of A, B and O Blood Group Substances in Pseudomucinous Ovarian Cyst Fluids. W. T. J. Morgan and Ruth Van Heyningen.—p. 5.

*Serum Colloidal Gold Reaction as Liver Function Test. N. F. MacLagan.—p. 15.

Comparison Between Reactions of Acute Phase Serum with Pneumococcus C-Polysaccharide and with Pneumococcus Type 27. G. Löfström.—p. 21.

Serum Colloidal Gold Reaction as Liver Function Test.

—MacLagan found that the serum colloidal gold reaction is greatly influenced by the reaction and the ionic strength of the medium. The technic has therefore been modified by the introduction of a buffer solution, which permits the test to be performed in a single tube in a reproducible manner without preliminary standardization of the gold sol. The conditions chosen give a final serum dilution of 1 in 60, a pH of 7.8 and an ionic strength of 0.01. The results obtained in 200 jaundiced and 200 nonjaundiced patients suggests that the test is a valuable indicator of liver damage. The almost uniformly negative results in obstructive jaundice give it a particular value in distinguishing this condition from infective hepatitis or hepatic cirrhosis. The results in arsenical jaundice (40 per cent positive) were strikingly different from those in infective hepatitis (95 per cent positive), suggesting some essential pathologic difference in the two groups.

British Journal of Surgery, Bristol

31:313-428 (April) 1944

War Surgery in Africa. W. H. Ogilvie.—p. 313.

Mobile Neurosurgery in Warfare: Experiences in Eighth Army's Campaign in Cyrenaica, Tripolitania and Tunisia. K. Eden.—p. 324.

*Studies in Pathology of Human Immersion Foot. W. Blackwood.—p. 329.

Problems and Principles of Restoration of Limb Function Following Injury, as Demonstrated by Humeral Shaft Fractures. F. S. A. Doran.—p. 351.

Carcinoma of Ampulla of Vater: Successful Radical Resection. K. Watson.—p. 368.

Case of Sulfuric Acid Burns. G. W. Cashell, H. B. Shay, D. C. Bodenham.—p. 373.

*Fat Embolism in War Surgery. J. V. Wilson and C. V. Salisbury.—p. 384.

Adrenosympathetic Syndrome with Transposition of Viscera. L. R. Broster and R. C. McKeith.—p. 393.

Sarcoma of Stomach. A. E. Porritt, K. E. A. Hughes and R. J. C. Campbell.—p. 395.

Observations on Regeneration of Semilunar Cartilages in Man. I. S. Smilie.—p. 398.

Fracture Dislocation of Base of Fifth Metacarpal Bone. B. C. Murrell.—p. 402.

Pathology of Human Immersion Foot.—Blackwood

reports observations on 14 specimens of immersion foot studied at the Department of Pathology of the University of Edinburgh. The specimens varied in type from a digital nerve to a whole foot and leg, and they have varied also in the interval which has elapsed between the period of exposure and the removal of the specimen. All the material has come from severe cases with the result that gangrene and bacterial infection have often been present. The large arteries showed no severe narrowing. Slight intimal and medial fibrosis was sometimes present, also edema. The smaller arteries showed narrowing only immediately proximal to chronic infection. No significant changes were seen in the capillaries, but there were pericapillary foci of chronic inflammatory cells in the cases complicated at some time by infection and/or gangrene. Fibrous narrowing of small veins, with evidence of old hemorrhage into and around their walls, was seen either near gangrenous extremities, in chronically infected leg stumps or near an old amputation. The large veins showed significant narrowing due to patchy recanalized thrombus only when the leg stumps were chronically infected. Stasis of blood on the venous side, with diapedesis, thrombosis and intimal fibrosis, did occur, but such changes

were restricted to areas close to gangrenous or chronically inflamed extremities. Involvement of muscle fibers increased peripherally. From four months onward the muscle picture was one of variation in fiber caliber, with relatively little fibrosis. These changes were indistinguishable from those due to denervation and were associated with degeneration of muscle nerves. In addition there were occasional small areas of replacement of peripheral muscle fibers by fibrous tissue. At twelve months there was evidence of reinnervation of proximally situated muscles in the lower limbs. At twenty-six months after exposure, restoration to normal had spread farther down the limb, but changes indistinguishable from prolonged denervation were still present. In all patients surviving exposure, some degree of nerve degeneration was present. In uninfected patients when bone was available for study there was new bone formation subperiosteally and around the haversian canals. This was evidence of repair of the initial osteoporosis, which is a clinical feature of early survivors. The microscopic studies on patients with immersion foot demonstrate that damage is done to all tissues of the extremity.

Fat Embolism in War Surgery.—Wilson and Salisbury think that a definition of fat embolism as a state in which globules of fat are present in the circulation of sufficient size to cause blockage of the intimate vascularities of various organs may be accepted in principle, though there is evidence that local action of the fat particles on the capillary walls may be a feature of the condition. Their study is based on 1,000 consecutive battle casualties admitted to the surgical wards of a military hospital. No attempt was made at selection; the only proviso made was that for patients who recovered the injury should have been serious enough to warrant their stay in hospital for at least a week. These patients suffered from all types of war injury, but 119 had fractures of the long bones only. There were 8 patients with clinical fat embolism among the 1,000 and 6 of the 8 died. The pathogenesis of this condition and the actual mechanism involved are not clear. There is no definite laboratory examination which can always be relied on for early diagnosis. Sputum examination is of doubtful value. Fat in the urine is diagnostic, but it appears rather late in the condition. Darkground illumination of the blood would appear to be the most helpful examination. The blood picture is important. The treatment of fat embolism is empirical. The authors suggest venesection if the blood pressure allows it, followed by intravenous administration either of whole blood or of dextrose in saline solution. Working on the fact that insulin may aid the liver to remove fat from the blood, the authors have used this and consider it helpful, although the results are by no means dramatic. Care must be taken not to increase the pulmonary edema. For the dyspnea and cyanosis the administration of oxygen is extremely helpful. Sedatives may be necessary in the irritative stage of cerebral embolism. When pneumonia develops, treatment is along the usual lines.

Journal of Hygiene, London

43:291-362 (April) 1944

Statistical Examination of Accuracy of Vitamin A Assays: An Analysis of Three Cooperative Experiments Designed to Ascertain Value of Conversion Factor for Transforming Spectrophotometric Values into International Units. J. O. Irwin.—p. 291.

*Sex Ratio of Pneumonia. Mortality. W. J. Martin.—p. 315.

An Atypical Neisseria Causing Meningitis. J. L. Edwards.—p. 328.

Studies in Immunization by Species Antigen: II. Presence of "Species Antigen" and of "Opposition Factor" in Bacteria Other Than Pneumococci. H. B. Day.—p. 330.

Revaccination as Measure of Immunity to Smallpox. E. S. Horgan and M. A. Haseeb.—p. 337.

Diphtheria in Glasgow 1934-1942. H. S. Carter.—p. 341.

Pressure Operated Safety Cylinder for Use in High Vacuum Serum Drying Plants. F. B. Byrom.—p. 349.

Use of Antiseptic Sprays for Air Sterilization: Summary of Report to Medical Research Council. R. J. V. Pulvertaft.—p. 352.

*Epidemiology of Q Fever. E. H. Derrick.—p. 357.

Sex Ratio of Pneumonia Mortality.—According to Martin an excess of male over female mortality has been a feature of the respiratory diseases, particularly of pneumonia. He analyzes the average male mortality expressed as a percentage of the average female mortality from pneumonia for the fifteen

years from 1924 to 1938 for the areas of London, the county boroughs, urban and rural districts and for four age groups. A table shows that urbanization had little effect on the mortality sex ratio at the younger ages and only to a slight extent in the oldest age group, but at ages from 15 to 65 years there was, excluding London, a distinct progression with urbanization. In each age group the males experienced a higher mortality than the females, and the males were at a greater disadvantage during infancy than in childhood or old age, but the striking difference between the sexes occurred at ages of 15 to 65, when the males had a mortality twice as large as the females. The large mortality sex ratio found at ages 15 to 65 suggests that the differences between the mortality of the sexes may be caused by occupations with a high pneumonia risk. There is little evidence of an occupational risk for males; however, some occupations, such as furnace tending, involve a direct risk of pneumonia. The liability of these men to respiratory diseases was attributed by Vernon to the abrupt changes in the temperature to which the men were exposed by the conditions under which they worked, i. e. hot, heavy and exhausting spells of work alternated with periods of rest. Other occupations involve a more indirect risk; these include innkeepers, hotelkeepers, bartenders and makers of alcoholic drinks. The prognosis of pneumonia is affected by previous indulgence in alcohol, and the aforementioned occupations have a higher proportion of heavy drinkers than does the general population, and these occupations have a high mortality from pneumonia. A greater susceptibility among males than among females to infection or a greater power of recuperation possessed by females may be a possible explanation of the general excessive male mortality. During the working years of life a considerable part of the large male excess must be attributed to an indirect occupational risk, the general conditions of life that an occupation involves, rather than to the type of occupation.

Epidemiology of Q Fever.—According to Derrick investigations in Brisbane revealed that Q fever is a rickettsiosis and that it occurred also among farm workers and others. It was named Q fever and the causative organism *Rickettsia burnetii*. In seven years 176 cases of Q fever have been diagnosed in Queensland. Nearly all the 129 patients who lived in Brisbane were associated with meat works. Most of the 47 country patients worked on dairy farms. Investigation of native animals, cattle and ticks has indicated in outline the natural history of Q fever. Several steps in this outline need confirmation, and much detail remains to be filled in. First there is a basic cycle of infection with the bandicoot and probably other bush animals as reservoir, and *Haemaphysalis humerosa* and probably *Ixodes holocyclus* as vector. A bush worker may interrupt this cycle and get Q fever from the attack of *Ixodes holocyclus*. Cattle become infected probably through *Ixodes holocyclus* and perhaps through other ticks. It is possible that there is a secondary cycle: cattle—*Haemaphysalis bispinosa*—cattle. Ticks on the cattle (*Boophilus annulatus microplus* or *Haemaphysalis bispinosa*) are probably the source of human infection. It is suggested that inhalation of tick feces is the likely mode of entry of *Rickettsia burnetii*.

Journal of Royal Army Medical Corps, London

82:99-150 (March) 1944

- Medical Aspects of Occupation of Captured Enemy Towns and Ports. W. L. Spencer-Cox.—p. 99.
- Analysis of 422 Cases of Infection of Throat and Gums. T. Crawford.—p. 105.
- Surgery in West Africa: Experiences in Military Hospital. W. M. Dennison and A. L. Dick.—p. 112.
- Experiences of Battle Casualty at El Alamein. J. C. Bishop.—p. 125.
- *Corneal Vascularity as Sign of Ariboflavinosis. J. G. Scott.—p. 133.

Corneal Vascularity as Sign of Ariboflavinosis.—Of 536 Europeans, according to Scott, 37 per cent had corneal vascularity. Of 1,700 Africans, 5 per cent presented corneal vascularity. Judged by perleche, cheilosis and glossitis, the Africans had double the European numbers of ariboflavinosis. Corneal vascularity therefore cannot be taken as a guide to avitaminosis in the African. Of 136 Europeans who were examined by slit lamp, 70 took a course of riboflavin while

50 acted as controls. This therapeutic test was negative. The degree of vascularity fluctuates with or without riboflavin. Corneal vascularity cannot be accepted as a guide to avitaminosis in Europeans. All the Africans examined had a rim of pigment at the corneoscleral junction. It is possible that this rim of protective pigment explains the striking difference in African and European corneal vascularity.

Journal of Royal Naval Medical Service, London

30:1-64 (Jan.) 1944

- *March Fracture. J. K. Salmon.—p. 1.
- Beriberi: Description of Condition in Ratings of Straits Settlements Royal Naval Volunteer Reserve, and Commentary on Clinical Appearance and Diagnosis. E. L. Thomson.—p. 6.
- Abnormal Reactions to Punishment. R. R. Prewer.—p. 13.
- *Epidemic of Hepatitis. N. M. McArthur.—p. 18.
- Secondary Hemorrhage. W. G. Gill.—p. 22.
- Plague (Bubonic and Pneumonic) in Port Said. S. L. Townsend.—p. 25.
- "White Man's Grave"—West Africa Yesterday and Today. S. Miles.—p. 30.
- The Maine Goes to Sea. R. A. W. Ford.—p. 34.
- Rehabilitation. F. G. Ward.—p. 37.
- Radiologic Diagnosis of Pulmonary Tuberculosis. J. F. M. Campbell.—p. 45.
- Rapid Method of Moving Helpless Patients Into Hospital-Ship Boats in Abandoning Ship. R. A. W. Ford.—p. 47.

March Fracture.—Salmon points out that diagnosis of march fracture may be missed because of absence of a history of direct trauma and the comparatively few physical signs. The fracture is most commonly seen in the third or fourth metatarsal bones. Always transverse, it occurs across the neck or distal end of the shaft and typically without displacement. The x-ray appearance is a "fine hairlike crack" and in consequence is easily missed. There is usually no history of direct trauma, more often a gradual onset of pain in the metatarsal region. Examination of the patient often reveals little apart from slight edema over the dorsum of the foot and tenderness over the metatarsal involved. The earliest x-ray sign is a slight raising or thickening of the periosteum around the neck or shaft. This is accompanied by all ill defined osteoporosis of the cortex. A fine transverse crack may be detected. The periosteal elevation becomes fusiform with an increasing density, forming the pre-gallus stage. Callus formation then occurs, finally to be absorbed leaving a thickened cortex. If the patient is first examined during the periosteal reaction a mistaken diagnosis may result, the most important of which is a sarcoma, but in the absence of cortical disturbance subperiosteal spiculation and further x-ray investigation should exclude this. March fracture must also be differentiated from Köhler's disease and from syphilitic periostitis. The author saw 5 cases of march fracture at a naval hospital, and of these 2 are described. The great importance of the x-ray investigation of patients complaining of slight pain and swelling over the dorsum of the foot is stressed. Further films should be taken during the following fortnight in the absence of positive findings in the first. Treatment is that of any other fracture, namely immobilization and rest.

Epidemic of Hepatitis.—McArthur reviews 46 cases of hepatitis which occurred among the personnel of a hospital ship numbering 244. There was a hospital staff of 110 and a ship's staff of 134. There were 45 cases of epidemic hepatitis among the hospital staff and only 1 among the ship's staff. All patients had received yellow fever vaccine on the same day, and jaundice appeared thirteen to twenty-three weeks later. There was a remarkable uniformity in the mode of onset. The symptoms were those usually associated with so-called catarrhal jaundice. There were no fatal cases, but debility was severe. Laboratory investigations in the more severe cases revealed a secondary anemia and hyaline and granular casts in the urine. A vaccine contaminated by the virus of epidemic hepatitis seems the most probable source of the epidemic. Certain of the cases may have been the result of contact infection, as it is otherwise difficult to explain the selective way in which the hospital staff was affected.

Lancet, London

1:489-522 (April 15) 1944

- *Posthemorrhagic Fainting: Study by Cardiac Output and Forearm Flow. H. Barcroft, O. G. Edholm, J. McMichael and E. P. Sharpey-Schafer.—p. 489.
- Polioomyelitis: Studies on Inciting Agent and Specific Serum Treatment. E. C. Rosenow.—p. 491.
- *Vitamin K as Prophylactic in 13,000 Infants. J. Lehmann.—p. 493.
- Gingival Disease in Gibraltar Evacuee Children. J. D. King and A. B. Franklyn.—p. 495.
- Megaloblastic Anemia as Sequel to Malaria. S. F. Seelig and J. R. Hemming.—p. 498.
- Phonoelectrocardiography. G. E. Donovan.—p. 500.
- Case of Contracted Bladder. S. I. Levy and J. S. Horn.—p. 501.
- Three and a Half Years' Treatment with Sulfapyridine: In case of Dermatitis Herpetiformis. B. Barlings.—p. 503.

Cardiac Output and Forearm Flow in Posthemorrhagic Fainting.—Barcroft and his associates think that vasovagal fainting reactions with acute fall of blood pressure and slow pulse demand detailed study because they constitute one manifestation of hemorrhagic or oligemic shock. They become increasingly frequent as hemorrhage increases in magnitude. Fainting occurs in 3.8 per cent of donors bled 440 cc., and the incidence rises to 8.5 per cent when the bleeding is increased to 540 cc. Studies of the effects of larger venesections on normal male volunteers show that of those bled 800 to 1,000 cc. 11 out of 28 fainted, and of those bled 1,000 to 1,200 cc. 15 out of 29 fainted. Some authors have ascribed fainting to lack of blood supply to the brain, others to vasodilatation in the peripheral vascular system and to bradycardia, a combination to which the term vasovagal syndrome was applied. The authors report studies on healthy young male volunteers. Cardiac output by a direct Fick method and mean right auricular pressure were measured by cardiac catheterization. Forearm blood flow was measured with the Lewis and Grant plethysmograph, the arm being immersed in a water bath at 35 C. When cardiac output and arterial pressure are known, an estimate of the resistance to flow imposed by the peripheral arterioles may be made. During fainting after hemorrhage cardiac output and right auricular pressure are often substantially unchanged. The acute fall in blood pressure cannot be explained by bradycardia and decreased cardiac output; it is due to peripheral vasodilatation. Forearm blood flow is approximately doubled; since the blood pressure is about halved, this indicates pronounced vasodilatation. The vasodilatation cannot be in the skin, which is pale; it is in the arterioles of the underlying muscle. If vasodilatation of the same order occurred throughout the body musculature there would be a considerable drop in the blood pressure, possibly great enough to explain the fall in fainting. The vasodilatation is mediated by vasomotor nerves.

Vitamin K as Prophylactic in 13,000 Infants.—According to Lehmann, synthetic analogues of vitamin K appeared on the Scandinavian market in 1940 and prophylactic treatment of newborn infants was then started. He investigated the physiologic hypoprothrombinemia in 90 newborn infants by daily determinations during the first week after birth. For this purpose he used a micro modification of Quick's method. Forty of the 90 infants in which determinations were made belonged to the summer series, that is, they were born during July and August. The other 50 infants were spring births (March and April). It was found that during spring low prothrombin values were more common than in summer. The minimal but optimal dose of a vitamin K analogue for prophylactic treatment of newborn infants after birth was found to be 0.5 to 1 mg. and was as effective when given by mouth as by injection. A comparison of deaths from bleeding in 13,250 full term infants receiving vitamin K analogue with 17,740 untreated cases showed that 1.6 per thousand could be saved by the treatment and that general prophylaxis can be recommended, since the cost is low. Hemorrhagic disease of the newborn was found to include all forms of bleeding, and especially intracranial bleeding.

Quarterly Journal of Medicine, Oxford

13:1-36 (Jan.) 1944

- Myasthenia Gravis: Consideration of Its Causation in Study of 14 Cases. A. Wilson and H. B. Stoner.—p. 1.
- Serum-Iron in Health and Disease. Joan F. Powell.—p. 19.
- Loss of Weight in Obese Patients on Submaintenance Diets and Effect of Variation in Ratio of Carbohydrate to Fat in Diet. A. B. Anderson.—p. 27.

Transactions Royal Soc. Trop. Med. and Hyg., London

37: 287-346 (March) 1944

- *Pigment Metabolism and Renal Failure in Acute Sulfonamide Hemolysis Resembling Blackwater Fever. H. Foy, J. Gluckman and A. Kondi.—p. 303.
- Technic and Interpretation of Weil-Felix Test in Typhus Fever. A. Felix.—p. 321.
- Note on Preparation of Suspensions for Weil-Felix Test. R. F. Bridges.—p. 343.

Sulfonamide Hemolysis Resembling Blackwater Fever.—Foy and his associates show that the intravascular hemolyses in blackwater fever, incompatible transfusions, hemolytic jaundice and hemolysis from various drugs resemble one another. They report a case in which benzyl sulfanilamide had been given. Complete quantitative pigment estimations in blood and urine were made and correlated so that a comparison between the pigment metabolism in this condition, blackwater fever, and the other intravascular hemolyses was possible, bringing out the resemblances and differences between them. Intracorporeal methemoglobin occurs after sulfonamides, plasmochin and acetanilid but does not occur in blackwater fever. Oxyhemoglobin, methemalbumin and hemobilirubin are common to all the intravascular hemolyses. It appears that p-aminophenol or one of its derivatives is responsible for the methemoglobinemia after aniline and acetanilid; it seems uncertain whether or not similar metabolites are responsible in the case of sulfonamides and plasmochin. In the case described there existed an acute massive intravascular hemolysis accompanied by the presence of plasma oxyhemoglobin, methemalbumin and hemobilirubin, as well as intracorporeal methemoglobin and a profound fall in the red cell count. Urinary methemoglobin may be present in the intravascular hemolyses, but its presence in the urine is not related to plasma methemalbumin or intracorporeal methemoglobin; nor is its formation entirely dependent on urinary pH or ionic concentration. Both oxyhemoglobin and methemoglobin were found in the urine. There was an almost complete anuria that was not associated with blockage of the renal tubules with precipitated products of hemoglobin. There were, however, changes in both the tubules and the glomeruli, such as are characteristic in blackwater fever and incompatible transfusions. It is suggested that the anuria and azotemia are secondary to more fundamental changes that occur in the blood stream and which lead to upsets in glomerular filtration, tubular reabsorption, anuria and azotemia, and that blockage is a secondary phenomenon. In the present case there was a great difference in the microscopic appearance of the kidney tubules and glomeruli in the paraffin and frozen material. It is felt that the distortion brought about by the dehydration consequent on the paraffin method makes this technic unsatisfactory for correctly assessing the changes that take place in these delicate structures in the anuric condition. The great increase in the osmotic resistance of the red cells to saline solution and to lysolecithin was not related to changes in the cell volumes, thicknesses, diameters or ratios, and the Price-Jones curve was within normal range. The authors feel that changes in the environment of the cells, perhaps in the nature of circulating hemolysins, are more fundamental than physical changes in red cell structure.

Schweizerische medizinische Wochenschrift, Basel

73:497-520 (April 24) 1943. Partial Index

- Medical Survey of Accidental Injuries and Roentgenographic Studies. F. Lang.—p. 497.
- *Character and Diagnosis of Infantile Rickets. E. Wieland.—p. 500.
- Contribution to Studies of Ventriculometry. A. Melley.—p. 506.
- Cosmos and Man. E. Jenny.—p. 511.

Infantile Rickets.—Wieland's experience in the pediatric clinic in Basel suggests that craniotabes in the form of supraoccipital softening not only is pathognomonic of rickets but also represents the primary positive clinical sign of rickets. Isolated localizations of rickets in the skeleton may continue for a long time and may disappear temporarily or permanently since rickets is a chronic, remittent disorder of metabolism. That is why supraoccipital softening of the cranium may be observed in healthy infants. This symptom may be overlooked

for the same reason and its nosologic importance may be misunderstood. For many years incipient craniotabes had been mistaken for congenital defect of the cranium culminating in a soft cranium. All congenital disturbances of ossification of the cranium prior to and after birth subside spontaneously and become normal within the first four to six weeks after birth. Any recent supraoccipital softening or any increase in congenital supraoccipital softening in infants regardless of the interval between its occurrence and birth is rickety in character and requires specific therapy. Recovery will take place on administration of vitamin D (irradiated ergosterol or Vi-De) in any instance of uncomplicated rickets. Massive doses of vitamin D for a short time are not superior to small doses for a longer period but may be preferred in rapidly advancing cases, in those complicated by pneumonia and in cases of premature birth.

73:737-760 (June 5) 1943

Surgery of Cancer of Large Intestine, Except for Cancer of the Rectum. O. Hauptli.—p. 737.

Combined Metrazol-Epinephrine Shock Therapy of Epilepsy. A. Juba and L. Förizs.—p. 741.

*Biologic Reasons for Ineffectiveness of Sulfonamide Therapy in Severely Infected Wounds. H. Paschoud.—p. 743.

Symptomatic and Causal Treatment of Hay Fever and Hypotension Allergy. J. Strebel.—p. 746.

Ineffectiveness of Sulfonamide Therapy for Severely Infected Wounds.—Paschoud states that local sulfonamide therapy by application of dusting powder, crystals or solution in severely infected or contaminated wounds failed since diffuse phlegmons, erysipelas and gas gangrene present a continuous threat. Three factors are responsible for this failure: 1. Any drying effect with tendency of diminishing the secretion of the infected wound, instead of increasing its lymphorrhea must be deleterious. 2. The determination of the pH at intervals of two hours in 11 cases revealed the ineffectiveness of the local application of sulfonamide dusting powders in the control of the acidosis which develops in the deep recesses of the purulent layer of the wound. 3. It is Paschoud's experience that the normal course of an infected wound may be favorably influenced by a surface temperature up to 45 degrees (by contact with the potentiometer). Potentiometric determinations in those 11 cases demonstrated that the local application of sulfonamides does not prevent a progressive local drop in temperature.

73:761-792 (June 12) 1943. Partial Index

*Primary Group Infection with Tuberculosis in Military and Civil Life. W. Löffler and F. Zwimgli.—p. 761.

Tuberculosis and Army in Active Military Service in 1939 and in the Following Years. E. Uehlinger.—p. 769.

Tuberculosis and Army in Active Military Service in 1939 and in the Following Years. Morgenthaler.—p. 774.

Results of Systematic Roentgenologic Examination of Recruits in Army Unit After Their Induction in 1942. C. Frei.—p. 778.

Epidemiology of Tuberculosis in a Small Village in the Jura of Vaud. C. Bezençon, G. Cornu, H. Pache, P. Rochat and E. Urech.—p. 782.

Prevention of Tuberculosis. E. Bachmann.—p. 787.

Problems of Military Insurance. E. Bachmann, M. Kartagener and W. Löffler.—p. 789.

Primary Group Infection with Tuberculosis.—Löffler and Zwimgli report two endemics of primary group infections with tuberculosis. The person whose primary infection indicates a source of infection is referred to as the indicator. The person who transmits the infection is a donor and all the other members of the same group with tuberculosis are receptors, each of whom may have likewise served as an indicator. One of the groups consisted of 13 adults in a military unit. The donor was a man aged 24 with pulmonary cavernous tuberculosis. Primary tuberculosis developed within two years in these cases from contact with the donor. The receptors probably acted as donors for some of the cases. Open tuberculosis was demonstrated on examination of some of the receptors, and chain infection was caused by the donor and transmitted by some of the receptors. A primary complex was revealed in 10 of the 13 cases. Three of them presented the picture of phthisis with primary focus. Associated pleuritis was demonstrated in 10. The pleuritis in 9 resulted from contact at the same time as the primary complex or within a short time after its development. Fatal hematogenous infection secondary to

the primary complex occurred in only 1. The second group consisted of 9 persons, 3 adults and 6 children between the ages of 4 and 14 years living in the same household. The severe course of primary tuberculosis in 6 of these cases within a closed community suggested that the donor was to be found within the household. The examination of the members of the household demonstrated as donor a man aged 48 with tuberculosis of both upper lobes, with a large subclavicular cavity on the right side and aspiration foci in both inferior lobes. The sputum was positive for bacilli on repeated examinations. The infectivity of tuberculosis is emphasized and immunization experiments with BCG vaccine are suggested. The majority of the cases presented primary infections which were demonstrated on examination in the postprimary stage. Exogenous infection, therefore, should be considered in each case. The source should be sought not only after the demonstration of the last case but immediately after that of the first case in order to prevent further spread of the disease.

73:793-816 (June 19) 1943. Partial Index

Critics and Casuistics of Roentgenologic Examinations in the Army. H. H. Weber.—p. 793.

*Coronary Sclerosis in Youths. A. von Albertini.—p. 796.

Feasibility and Technic of Sulfonamide Therapy by Rectal Route. G. Rieben.—p. 797.

Expediency of Electrocardiography in Relation to Other Methods of Physical Examination. O. Merkelbach.—p. 801.

Symptomatic and Causal Treatment of Hay Fever and Hypotension Allergy. J. Strebel.—p. 805.

Coronary Sclerosis in Youths.—Arteriosclerosis of the type of isolated malignant stenotic sclerosis occurs in young persons. The specific inflammatory character of coronary stenosis resembles that of thromboangiitis obliterans (von Winiwarter-Buerger's disease). There is a consensus that the latter represents an inflammatory process. The resemblances of the two diseases are demonstrable by microscopic studies and by the clinical and anatomic sequences of coronary insufficiency, angina pectoris and myocardial infarcts, on the one hand and intermittent claudication, circulatory and trophic disturbances of the extremities, necrosis and gangrene on the other. Both diseases occur almost exclusively in men. There is also conformity with regard to age. Coronary stenosis represents Buerger's disease of the coronary arteries. Secondary arteriosclerosis occurs at a later stage of both conditions. This condition develops from the scar that was left in the wall of the vessel by the primary inflammation. Cholesterol is not the etiologic factor. Factors causing mild inflammation with little destruction of tissue play a part in the causation of Buerger's disease. The tendency toward recovery is predominant. The patient suffers chiefly from cicatrization. The concept of focal infection of mild virulence is suggested.

Semana Médica, Buenos Aires

51:801-852 (April 20) 1944. Partial Index

*Transfusion of Suspensions of Blood Globules. A. M. Romero Alvarez.—p. 805.

Pregnancy and Atelectasis. J. Melfi and A. Molina.—p. 812.

Transfusion of Suspension of Blood Corpuscles.—Romero Alvarez prepares corpuscle suspensions as follows: Five hundred cc. of blood is placed in a flask and left in the ice box for twenty-four or forty-eight hours, after which the plasma is removed. A volume of a 5.4 per cent of dextrose solution in isotonic solution of sodium chloride equal to that of the removed plasma is added. The solution is then ready for use. It can be stored for from one to four days. The indications for its use are posthemorrhagic anemia and anemia of cardiac insufficiency. Hemocoagulation, shock, burns and hypoproteinemia constitute contraindications. The author transfused suspensions of blood corpuscles to 36 patients with posthemorrhagic anemia. The number of transfusions varied from one to eighteen. The amount for each transfusion varied from 100 to 500 cc. Corpuscle suspensions are tolerated better than total blood, for which they are a good substitute. The importance of administering cell suspensions to the wounded in war, as well as to the victims of various catastrophes among civilians, is emphasized.

Book Notices

Allergy in Practice. By Samuel M. Feinberg, M.D., Associate Professor of Medicine and Chief of the Division of Allergy, Northwestern University Medical School, Chicago. With the collaboration of Oren C. Durham, Chief Botanist, Abbott Laboratories. Cloth. Price, \$8. Pp. 798, with 36 illustrations. Chicago: Year Book Publishers, Inc., 1944.

The author has succeeded in writing a book in simple language, easy to read and to understand. The arrangement of the subject matter, using normal type in the presentation of the generally accepted material and smaller type for the more controversial aspects, is to be commended. The chapter on allergy to fungi is complete and includes Dr. Feinberg's special studies in this field. The chapter on pollen and pollen allergy was written by Oren C. Durham, whose many years of experience with botanic surveys in various sections of the United States makes his contribution a valuable addition to the book. Every section of the country is mapped botanically, a great help to practitioners in their respective localities. The major portion of the book is, as expected, devoted to the diagnosis and treatment of hay fever and asthma. This phase of the subject is fully covered. However, the other allergies are not neglected, fully one fifth of the book concerning itself with allergic coryza, urticaria and angioneurotic edema, the dermatoses, migraine and gastrointestinal allergy. Diagnosis and differential diagnosis are sufficiently detailed, and the treatment outlined is very practical. Each chapter is summarized. The bibliography is fairly complete. The use of the term adrenalin instead of the more appropriate epinephrine hydrochloride is an oversight. All in all, this book may be used profitably by both the beginner and the specialist in allergy and is recommended highly.

Polinosis. Por Leopoldo Herranz Ballester, doctor en medicina, y Juan Victor Monticelli, doctor en ciencias naturales. Prólogo del Profesor Carlos Jiménez Díaz. Paper. Pp. 227, with 2 illustrations. Buenos Aires: Librería Hachette S. A., Palacio del Libro, 1943.

The authors, a physician and a botanist, present their closely integrated efforts over a period of four years in digesting the literature on pollen allergy, particularly from North and South America, and in carrying out comprehensive field, atmospheric and clinical pollen research. The book is not offered as a monograph on pollen disease but as a general preliminary study of the local Argentine problem, which will be followed shortly by a long series of articles which are listed by title in the bibliography. Emphasis is placed on the basic importance of recognition of the local qualitative and quantitative differences in the exposure of sensitive persons to pollens, and the authors strongly advocate the method of parallel clinical evaluation of pollen species while the seasonal and geographic incidence of these species is being determined.

The first half of the book is devoted to the anemophilous flora and air borne pollen of eight of the most populous provinces and territories of central Argentina as compared with similar data from other parts of the world. Three floral zones are mapped. Two of these are made by dividing the pampas region into an eastern area where rainfall is more abundant and a western area of scant rainfall. The Andean zone is a narrow strip between the dry pampas and the continental divide. Daily tests of atmospheric pollen concentration have been carried out in eleven cities over a three year period. The botanic data are embodied in numerous tables supplemented with condensed comments.

The second half of the book covers the results of clinical work in Argentina and stresses the regional characteristics of pollinosis as related to the botanic studies already made. In matters of skin testing and preseasonal, coseasonal and perennial treatment the technic described is much the same as that followed by American authors, but the stock combinations of pollen extract described in the section entitled "Desensibilización Específica" would hardly meet the approval of allergists in this country.

The practical value of this book to physicians of the United States and Canada is obviously limited by the relatively small number of allergic persons who change their residence from North America to Argentina or vice versa.

Homicide Investigation: Practical Information for Coroners, Police Officers, and Other Investigators. By LeMoyné Snyder, Medical Legal Director, Michigan State Police. With chapters by Captain Harold Mulbar, Chief of the Identification Bureau of the Michigan State Police, Charles M. Wilson, Director, Chicago Police Scientific Crime Detection Laboratory, and C. W. Muehlberger, Director, Michigan Crime Detection Laboratory. Cloth. Price, \$5. Pp. 287, with 116 illustrations. Springfield, Illinois & Baltimore: Charles C Thomas, 1944.

The object of this book is to aid policemen, coroners and other officials in the investigation of deaths from unnatural causes. Special and detailed attention is given to the proper examination where and when the dead body is first found. Information of essential significance may be lost and the solution of vital problems prevented if this first examination is not done in the right way. The language is suitable, and the illustrations are instructive and realistic. The book will be of great value to all who must investigate apparently violent deaths, including practitioners who may be called on to make examinations in such cases. "Never touch, change or alter anything until identified, measured and photographed. Remember that when a body or an article has been moved it can never be restored to its original position." This is the golden rule for investigation in cases of suspected homicide, but the principle has wide application.

Parálisis infantil en Colombia. Por Luis Betancur Arango. Tesis de grado presentada a la Escuela de medicina para optar el título de doctor en medicina y cirugía, Universidad de Antioquia, Facultad de medicina y ciencias naturales. Paper. Pp. 138. Medellín, 1942.

Sporadic epidemics of subacute but typical poliomyelitis have been observed during the last twenty-five years in Colombia. Epidemic outbreaks occurred in Colombia at the same time at which epidemics occurred in several other countries. An epidemic among children under the age of 12 years was observed in the departments of Cauca, Valle del Cauca, Antioquia and Santander del Sur between October 1939 and August 1941. The patients in the department of Valle del Cauca acquired the disease from contagion during their stay in the department of Cauca. The author points out the importance of passing national laws for control of the disease. The therapy used in the 1939 and 1941 epidemics consisted of a daily dose of potassium chlorate by the mouth for two or three consecutive weeks. The patients had also 5 cc. of antistreptococcic serum daily up to a total dose of 20 cc. and a dose of 5 mg. of vitamin B every three days up to a total of 25 mg. The treatment had no effect on the course of the disease.

A Catalogue of the Medieval and Renaissance Manuscripts and Incunabula in the Boston Medical Library. Compiled by James F. Ballard, Director, Boston Medical Library. Cloth. Privately printed. Pp. 216. Menasha: George Banta Publishing Company, 1941.

The growth of the collection in the Boston Medical Library of incunabula and manuscripts is described in the introduction by Henry R. Viets, librarian. The compiler of the catalogue, James R. Ballard, has just completed fifty years of service to the library. He has had "a lifelong interest in manuscripts and the early printed medical books." Mr. Ballard lists 674 incunabula and 52 manuscripts. The list appears to include some edition or other of nearly every book of medical interest published before 1501. Scholars, librarians and bibliographers will appreciate the appended indexes of subjects, names, manuscripts, printers, publishers and patrons as well as the concordances to the lists of incunabula by Stillwell, Klebs and Osler. The illustrations are of singular interest. Special congratulations are extended to the Boston Medical Library and to Mr. Ballard on this contribution to bibliographic scholarship.

Elimination Diets and the Patient's Allergies: A Handbook of Allergy. By Albert H. Rowe, M.D., Consultant in Allergic Diseases, Alameda County Hospital, Oakland, California. Second edition. Cloth. Price, \$3.50. Pp. 256. Philadelphia: Lea & Febiger, 1944.

The author states in the preface that the purpose of this book is twofold: "first to emphasize the importance of food allergy and, second, to discuss the other causes of clinical allergy with present day methods for their diagnosis and control." The second of these stated purposes is taken up in the first hundred and fifty pages of this book. The work is poorly done. The general physician without special training in allergy would have a confusing and incomplete picture of the allergic conditions and their methods of diagnosis from this part of the

book. The physician with only a limited but guided experience in allergy would have no need for the superficial remarks on many subjects contained in this first half of the book.

To clarify this statement are the following: Only three pages are given to contact dermatitis, its causes and methods of diagnosis; the entire subject of "sensitization" covers only one page; injectants, including serum sickness, drug allergy and vaccines, two pages; physical allergy, a brief paragraph; bronchial allergy and allergic bronchitis, eight pages; seasonal and perennial hay fever is treated in three pages. In a book with this title, the author might well have limited himself to a presentation of the principles of allergy in one hundred pages and presented the rest of his limited subject in the additional hundred pages.

The second part of this book, as in the first edition, is devoted to a thorough presentation of many useful elimination diets to fit a variety of diagnostic needs, together with sample menus and many useful and practical recipes. Additional recipes, information regarding various food components in mixed food preparations and much other useful information are contained in a loosely organized fashion in the final fifty pages of the book. The second part contains excellent material and much practical information for the reader who is able to organize such data.

Principles and Practice of Aviation Medicine. By Harry G. Armstrong, M.D., F.A.C.P., Colonel, Medical Corps, United States Army. Second edition. Cloth. Price, \$6.50. Pp. 514, with 87 illustrations. Baltimore: William Wood & Company, 1943.

The second edition of this now universally accepted textbook on aviation medicine has no change in the purpose, scope or arrangement of the subject matter from that in the first edition, which has been reprinted four times. Colonel Armstrong is recognized as an authority on aviation medicine. He has been largely responsible for keeping development in aviation medicine concurrent with development in aviation industry. This edition will undoubtedly increase the widespread interest in aviation medicine in the United States and abroad. Information has been added on the effects of centrifugal force and on the emotional reactions to flight. The importance of taking oxygen at altitudes as low as 5,000 feet at night in order to avoid reduction of night vision is stressed, and diagrams of the correct and incorrect manners of looking at objects in dim illumination are presented. The main sections of the book are those that deal with the selection and care of the flier, physical factors in flight, anoxia in aviation, altitude sickness, mechanical effects of decreased atmospheric pressure, including acrobolism and ear distress, pressure cabins, speed and acceleration and emotional reactions to flight. Naturally, a considerable portion of recent work in aviation medicine is classified as confidential and will not be available for publication until after the war; however, the inclusion of the unrestricted information available and the revision of several chapters, with addition of a number of illustrations and tables, are sufficient to make it mandatory for all persons interested in aviation medicine to read this book carefully.

Occupational Lead Exposure and Lead Poisoning. A Report Prepared by the Committee on Lead Poisoning of the Industrial Hygiene Section of the American Public Health Association. Paper. Price, 75 cents. Pp. 67. New York: American Public Health Association, 1943.

For some time there has been misconception of the etiologic factors, diagnosis, control and treatment of lead poisoning, as the result of enthusiastic publication of isolated procedures. This committee report is a practical authoritative statement on occupational lead exposure and poisoning which will clarify the situation. It is divided into five parts:

1. The recognition of hazardous lead exposures. This section covers the occurrence of lead poisoning in industry and the recognition and measurement of the exposure.
2. Safe limits of occupational lead exposure. This includes safe limits as shown by air analysis and clinical tests of blood and urine of workmen exposed.
3. Control of occupational lead exposure. This is a description of control by engineering features and the steps required in medical supervision of workers exposed to lead.
4. Occupational lead poisoning. A rather detailed description is given of the diagnostic procedure plus the management and treatment of lead poisoning.

5. Appendix and classified bibliography. The committee has not attempted to discuss completely all controversial points but has included this comprehensive bibliography, which gives the reader an opportunity to refer to any source material on specific points.

Introduction to Exceptional Children. By Harry J. Baker, Ph.D., Director, Psychological Clinic, Detroit Public Schools. Cloth. Price, \$3.50. Pp. 496, with illustrations. New York: Macmillan Company, 1944.

By "exceptional children" the author means not only the physically or mentally handicapped but also those in the outer ranges of normal, such as the excessively tall, unusually strong or specially gifted. Part I of the book correlates the education of the exceptional child with the purposes of all education, namely training for "self realization," "human relationships," "economic efficiency" and "civic responsibility." Part II is devoted to the problems of children with visual, auditory, lingual and orthopedic defects. Part III considers the subnormal and the intellectually superior. Part IV deals with neurotic behavior abnormalities, and the following two sections again take up the general problems of the educationally retarded and the difficult child. Obviously, so great a variety of topics can be dealt with only superficially in a single book. Unfortunately too, for a volume intended as a textbook the style is frequently slipshod (p. 71: "Louis Braille . . . lost his eyesight with a knife at the age of 5 years while imitating his father, who was a saddler by trade") and too many careless statements are made (p. 51: "Guy de Maupassant . . . had diplopia due to paralysis of the extraocular muscles, and his death resulted from the general paresis caused by it"). Nevertheless, the material is well organized, and certain sections such as those on visual defects are clear and informative. Behavior is approached dynamically and in relation to physical, social, economic and other factors as well as purely pedagogic influences. The book should serve well as an introductory textbook for students of elementary education; perhaps later revisions and additions will expand its usefulness to social workers, psychologists and physicians.

Virus Diseases in Man, Animal and Plant. By Gustav Selfert. A Survey and Reports Covering the Major Research Work Done During the Last Decade. [Translation by Marlon Lee Taylor, Ph.D.] Cloth. Price, \$5. Pp. 332, with 7 illustrations. New York: Philosophical Library, Inc., 1944.

In 1938 this book appeared in its original German edition. In its 221 pages it filled a definite need for a concise digest of the general characteristics of viruses and specific consideration of the different diseases. A brief chapter on methods pointed out the basic technics. This book has now been published as a translation into English with the added endorsement that it is published on recommendation of the National Research Council. No attempt has been made to produce a new edition revised so as to include studies since 1938. Probably the present volume will serve as a source book for reference. It is well annotated. The English of the translation is, however, unbelievably awkward. Much of the German terminology and construction are preserved to the point that whole sections are ridiculous. There are numerous mistakes in spelling, and the proof reading has been badly done. It is shameful that a book of such inherent value should have been so mistreated.

Laboratory Methods of the United States Army. Edited by James Stevens Simmons, B.S., M.D., Ph.D., Brigadier General, United States Army, and Cleon J. Gentzkow, M.D., Ph.D., Colonel, Medical Corps, United States Army. Approved by the Surgeon General of the United States Army. Fifth edition. Fabrikoid. Price, \$7.50. Pp. 823, with 111 illustrations. Philadelphia: Lea & Febiger, 1944.

The fifth edition of this well established work on laboratory technic indicates further progress in a book that has had a long and enviable record. The first edition appeared during the first world war, and other editions have been issued from time to time since that date. The present volume represents a composite work in which many distinguished investigators have cooperated. Every phase of clinical pathology is covered. The directions are explicit, the illustrations, particularly those on the distribution of tropical disease, most informative. References to the periodical literature which accompany the various chapters indicate that the work is quite up to date.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HYPERSENSITIVITY TO SULFONAMIDE

To the Editor:—I have been using a combination of powdered sulfanilamide and sulfathiazole for nasal insufflation in the treatment of head colds and sinus conditions. Is there any danger from prolonged therapy? What are the possibilities of sensitization to the sulfonamides? What tests determine whether or not a patient is sensitive to sulfonamides prior to their internal administration? In the event of sensitivity how can a patient be desensitized in order that the drug may be administered? Does sensitization eventually disappear if the patient abstains from using the drug over a period of time? M.D., New York.

ANSWER.—In discussing the effect of topically applied sulfonamides on human tissues, a distinction must be made between reactions resulting from toxicity of the compounds and a true type of induced hypersensitivity. This distinction is not too apparent at times. There is danger that a localized and, more rarely, a generalized type of hypersensitivity to sulfanilamide, and more particularly to sulfathiazole, may result from prolonged nasal insufflation of these compounds. Other than these, possibilities there does not appear to be any danger, although some authorities are opposed to the use of solutions of sodium sulfathiazole for such purposes because of the possibility of producing tissue necrosis. Leftwich has recently proposed the thesis that hypersensitivity to the sulfonamides is an allergic reaction similar to serum sickness (An Intradermal Test for Recognition of Hypersensitivity to Sulfonamide Drugs, *Bull. Johns Hopkins Hosp.* 74:26 [Jan.] 1944). Therefore, hypersensitivity to the sulfonamides may be detected by injecting intradermally serum which is obtained from a patient who is receiving a sulfonamide in doses so that a serum level of 2 mg. or more per cubic centimeter is present. An immediate type of reaction will be obtained in the patient who is hypersensitive to the drug. Before such a test can be accepted by the profession, confirmation of this work is necessary. A more commonly used procedure in patients suspected of being sensitive is to administer 0.5 Gm. of the drug by mouth and keep the patient under observation for ten to twelve hours. Patients who are sensitive to the compound will exhibit such reactions as fever, skin eruptions and nausea and vomiting. In the event that a patient does exhibit signs of sensitivity to one sulfonamide, it would be more practical to try another sulfonamide. While desensitization to a sulfonamide has been attempted, it is a time consuming and dangerous procedure. This has been accomplished, according to some reports, by the oral administration of a small dose of the drug, and then increasing the doses gradually. In general, real hypersensitivity to a particular sulfonamide has been shown to persist for as long as two to three years.

MANAGEMENT OF PATIENTS WITH AURICULAR FIBRILLATION AND CONGESTIVE FAILURE

To the Editor:—A patient has chronic bronchial asthma, is 63 years old and has developed congestive heart failure. His pulse was rapid but regular until he was fully digitalized; then his heart began fibrillating, but his signs of congestion began to improve. On discontinuing digitalis the pulse became regular but signs of congestion increased. The only other therapy has been four doses of mercupurin. If I continued digitalis therapy in spite of the fibrillation which developed would the ventricular rate, which is rapid even during fibrillation, slow down and become more regular? Incidentally, the fibrillation was occasionally replaced by short periods, say thirty seconds, of slow, regular pulse. The only sign of digitalis toxicity was partial loss of appetite.

Bernard Marcus, M.D., Bronx, N. Y.

ANSWER.—It is impossible to answer the specific question raised, but the principles underlying a proper answer can be outlined in detail. The ranges of digitalizing doses of digitalis and of maintenance doses are now recognized to be wider than had been hitherto supposed. An occasional patient will become digitalized on as little as 5 cat units, will require only 2 units a week as a maintenance dose and will become toxic if 3 units a week is given. On the other hand, an occasional patient can take as much as 30 units during the course of a massive dose technic of digitalization and will require 2 units a day as a maintenance dose and may not show toxic signs on 3 units a day.

It is impossible to say whether the patient described had too much or too little digitalis, but it would seem probable that it was the former. Without an electrocardiogram it would be clinically impossible to determine whether during the periods of fibrillation his rapid ventricular rate was the result of beats all of which were of supraventricular origin or some of which were ventricular extrasystoles. Furthermore, the ST and T changes in the electrocardiogram would give some clue as to possible digitalis intoxication. It should be added that a few patients develop serious toxic digitalis rhythms without even a loss of appetite as a clinical guide to the nature of the trouble.

A relatively small initial dose of digitalis may be given at a time when the patient has had none for some three weeks (approximately 5 cat units). If the signs of congestion begin to improve, 1 unit every other day might be tried as a maintenance dose, modifying this as seems indicated by the progress of the congestive heart failure. If there is no evidence of clinical improvement eight hours after the first dose of 5 cat units, 2 or 3 cat units might be given every twelve hours until the patient begins to improve. A diuresis is one of the frequent early signs of clinical improvement. When this begins, the large doses should be discontinued immediately and smaller ones started, their frequency to depend on the total amount given by the foregoing technic. If, for example, a diuresis begins after 11 cat units has been given in three divided doses, it is probable that the patient cannot tolerate 1 cat unit a day but will do better on something like 5 a week. If, however, a total of 23 cat units has been given in seven divided doses before any evidence of improvement occurs, it is probable that he will require more than 1 cat unit a day as a maintenance dose—probably 9 or 10 units a week.

It is not likely that the patient will develop fibrillation if the digitalis is administered as described. However, if this does occur before signs of clinical improvement occur, two alternatives are open: Maintenance doses of quinidine may be given simultaneously with the digitalis therapy or another preparation may be tried such as squill or strophanthin, of which the former would seem to be the method of choice.

DEXTROSE CONTENT OF POSTMORTEM BLOOD

To the Editor:—For how long after death and how accurate are blood sugar determinations obtained from cadavers? M.D., Massachusetts.

ANSWER.—The dextrose content of postmortem blood is gradually reduced from the time of death. Many factors influence the rapidity of this reduction, such as temperature, enzymatic action and pH of the blood. Hill estimated that at 37.5 C. the rate of reduction lies between 10.1 and 16.5 mg. per hour; with an average of 12.8 mg. in 100 cc. of postmortem blood. At 27.5 C. the reduction rate was between 4.14 and 6.94 mg. per hour, with the average 5.98 mg.

Disease processes also influence glycolysis. For example, in anemia and leukopenia disorders glycolytic action is retarded, whereas in the leukemias and erythremia there is an acceleration of the process. Furthermore, the dextrose content of postmortem blood at the time of death varies in different conditions. High values are occasionally found in asphyxia, shock, acute coronary occlusion, increased intracranial pressure, diabetes and certain poisons, especially those causing anoxemia. Low postmortem blood sugar is found in starvation, insulin shock, certain liver diseases, such as acute yellow atrophy, and in debilitated and cachectic subjects.

Under the circumstances it is not possible to express an opinion as to the fixed time interval when glucose will disappear. The sugar has been found thirty-six or more hours after death and in favorable cases probably persists until decomposition destroys it.

It is generally recommended that the blood be taken from the left side of the heart as soon as possible after death. Hypoglycemia may be suspected if the tests fail to show dextrose or the substance is present in minimal amounts within two hours after death.

Generally considered, it is the writer's opinion that these tests are of limited value in legal medicine from the point of view both of the cause of death and of the estimation of the post-mortem interval.

For a more comprehensive discussion of the subject with the literature, the inquirer is referred to the article on the significance of dextrose and non-dextrose reducing substances in postmortem blood by E. V. Hill in the *Archives of Pathology* 32:452 (Sept.) 1941.

ALLERGY AND ALBUMINURIA

To the Editor:—I have heard recently of studies on the relationship of allergy to albuminuria. A patient is sensitive on scratch and intradermal tests to a large variety of foods, household contacts and grass, tree and plant antigens (26 out of 45 tested) although he now has only fair hay fever. He had stubborn eczemas in childhood, and is still prone to contact dermatitis. His albuminuria, which began after an attack of massive hematuria, is still quite heavy, eleven months later. He has had several flare-ups of hematuria during the past year following physical strains or colds. However, his blood pressure is never over 130/90 and was 124/84 five years ago. He has never had any anasarca or other manifestations of glomerulonephritis. His plasma proteins, sedimentation rate and nonprotein nitrogen are all normal. Would I be justified in attempting to desensitize this patient with streptococcus vaccine on the basis of attributing his nephritis to abnormal sensitivity to *Streptococcus haemolyticus*?

M.D., Indiana.

ANSWER.—In acute allergic reactions, such as serum sickness, a severe prolonged attack of asthma or following an acute anaphylactic reaction, albuminuria is apt to occur as part of the general clinical picture. In the ordinary atopic manifestations, such as rhinitis, asthma or eczema, albuminuria is certainly not found with any degree of frequency. It has been shown experimentally in animals that kidney inflammation may result from bacterial sensitization. Presumably the same phenomenon might occur in man. Bacterial allergy, however, is difficult to prove in the individual case, and in the particular instance cited no data are presented which would give evidence for that possibility. If a focal infection, such as infected tonsils or teeth, is present the proper procedure would be to eliminate the infection. Even when a source of bacterial allergy can be proved, "desensitization" with the bacteria or their products still remains a highly experimental procedure.

PSYCHOMETRIC RATING TESTS

To the Editor:—Could you give me information concerning suitable psychometric tests for adults? When time is limited, the Stanford revision of the Simon-Binet test and some of the other longer ones are not appropriate. I have been using the Kent test with fairly good results. Recently its reliability was questioned by some of my associates; for instance, it was pointed out that the answer to question 20, whose picture is on a two cent stamp? Washington's, is wrong. Of course that may not affect the validity of the rest of the questions and answers. I wonder if there is a revised edition of this test which has been found useful because of its brevity and easy computation. Will you comment on the reliability of this test? Thank you for references on this and other short tests.

M.D., Iowa.

-ANSWER.—The reliability of the Kent EGY is fairly good; that is to say, correlative reliability is not as good as one would like to have it, but it is sufficiently high to obtain trustworthy psychologic ratings. Its greatest limitation is that it is essentially an information test, thereby being a handicap to persons who have had little formal schooling. Several army units have used it and report satisfactory results.

For general purposes, the short form of the Stanford Revision of the Binet-Simon test is most satisfactory.

PREPARATION OF PERTUSSIS VACCINE

To the Editor:—Could you give me information on any difference in prophylactic value of whooping cough vaccine made with human blood and that made with animal blood?

James C. Overall, M.D., Nashville, Tenn.

ANSWER.—Whooping cough vaccine is used chiefly as a preventive, injected preferably soon after the seventh month of life. Vaccine made with human blood is not "washed" and is reported to contain all the products of the micro-organism. Other vaccines made with horse, sheep, bovine or goat blood is washed to rid it from the alien (animal) protein, injection of which might otherwise sensitize the child or, on subsequent injection of any biologic preparation prepared with the homologous blood, might elicit local or systemic reactions of one kind or another. According to some investigators, "washing" weakens the antigen.

BOXING, TRAUMA AND EPILEPSY

To the Editor:—A young man who has been a professional boxer for several months was placed in 4-F by his Selective Service board. The reason for his classification was that he had epilepsy, and it is my opinion that he should not be in that particular professional sport. I am writing to ask what the consensus is on that subject.

M.D., Wisconsin.

ANSWER.—On theoretical grounds the profession of boxing is a poor occupation for an epileptic person. Frequent blows on the head cannot be good for the integrity or the function of the brain, as witness the condition called "punch drunk." However, it is surprising but true that an epileptic patient may experience skull fracture and severe brain concussion without exacerbation of his seizures.

PROBABLE TRAUMATIC URETHRAL STRICTURE WITH
RECURRENT EPIDIDYMITIS

To the Editor:—A man aged 27, of unusually rugged type, doing the hardest kind of work in the oil fields, has just been discharged from the hospital (two days) with the diagnosis of gonorrheal epididymitis. He has three healthy children; the youngest, 14 months, does not suggest syphilis. He denies venereal disease and, after talking to him and his wife, I am inclined to believe this. There is no urethral discharge; therefore there is nothing to examine there. The hospital chart states "No laboratory work necessary," so I do not know on what the diagnosis was based. The patient gives the following history: At 10 years of age he fell astraddle of something and passed blood for a few days. At 14 years of age he began to have attacks of swelling and pain in the scrotum, apparently involving the epididymis, from his description. He has had such attacks for twelve years up to the present time on an average of once a month, he says. Fourteen months ago his wife was delivered by cesarean section because of placenta previa. To avoid another pregnancy the patient had vasectomy done a year ago. He has continued to have his attacks of pain and swelling in the scrotum, and the present is the most severe attack he has had. The right testis is much swollen—about the size of a goose egg—and is moderately tender. The epididymis can be felt, is enlarged and is exquisitely tender. The swelling at the testis is not a hydrocele. He has one enlarged inguinal gland on the left. His temperature is 100 F. The white blood count is 6,000. He had mumps when a child. The mild attacks at frequent intervals have continued since the vasectomy. On account of these recurring attacks I would be inclined to advise removal of the right testis but for the fact that, as he tells, two of the mild attacks have been on the left side. To palpation the left testis is normal at present. One detail that puzzles me is why, if this is a gonorrheal infection arising from infected seminal vesicles, it should continue after vasectomy with the same frequency as before.

M.D., California.

ANSWER.—The diagnosis made on the discharge from the hospital in this case seems highly questionable. In the first place, the diagnosis was not made by following any scientific examination, and the clinical history as presented here is not one of a chronic gonorrheal infection. It would appear that the most pertinent fact in this man's history is that he had a straddle urethral injury ten years ago. The complication resulting from such trauma is, of course, traumatic urethral stricture. One of the most common causes of spontaneous intermittent epididymitis is urethral stricture. On the basis of the available facts this man most certainly should have a careful investigation of his anterior urethra for stricture and careful investigation of his prostate and seminal vesicles for infection.

To be sure, an adequate vasectomy should protect the epididymis from descending infection, but in the presence of continued epididymitis one must think of the possibility that the vas was not resected on one or both sides or that residual infection remains on one or the other epididymis even after the subsidence of acute local symptoms.

Under no consideration should orchiectomy be thought of in a case like this, but occasionally there are indications for epididymectomy under similar circumstances.

THE CHEMICAL REACTION OF PERSPIRATION
ON PEARL ARAGONITE

To the Editor.—Relative to the answer given to Dr. Putnam's inquiry on the effect of skin secretions on pearls (May 20, 1944 issue of The Journal) I wish to state that an erroneous statement is made when it is said that perspiration will not harm pearl aragonite. During the past five years, as director of the Bureau of Natural Pearl Information, an organization supported by forty retail and wholesale jewelry firms, I have handled, inspected, and tested thousands of pearl necklaces of both cultured and natural origin. Among the many necklaces tested, samples of pearls have been found which had lost their original sphericity through strictly chemical processes. This particular problem was first investigated when I was an incumbent on the Pearl Fellowship, Mellon Institute of Industrial Research, 1938-1940. To cite a simple experiment, one has only to immerse a pearl necklace in distilled water and leave it there for a few days. Carbon dioxide will be absorbed from the air, with the result that the distilled water will become mildly acidic. Under certain conditions the pH of the water may get to be as low as 5. On removing the pearls after their submersion, one finds that they are completely white, having lost their original luster and orient. Solution of the calcium carbonate of the pearl has ensued as a result of chemical reaction. Since distilled water is not perspiration, let us consider the analyses of human sweat, as made by Mosher (J. Biol. Chem. 99:781, 1932) and by Vass and McSwiney (J. Soc. Dyers & Col. 46:190, 1930). Sweat was obtained from 4 obese women and the pH of each sample determined. Mosher found the pH to be 5.52, 5.48, 5.39 and 5.77 respectively. Since a neutral solution is taken as pH 7, the figures here given are definitely on the acid side. Vass and McSwiney collected 583, 540, 470, 440, 534, and 498 cc. of perspiration from as many individuals. The pH values are again those of an acid medium. These authorities give complete chemical analyses of the perspirations examined and should be consulted for the exact acid constituents found. Incidentally, the amount of sweat exuded by stout persons may be twice that formed by normal individuals under the same conditions. The evidence presented here is the real answer to Dr. Putnam's inquiry.

A. E. Alexander, Ph.D., New York.

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ABUSE OF REST AS A THERAPEUTIC MEASURE FOR PATIENTS WITH CARDIOVASCULAR DISEASE

CHAIRMAN'S ADDRESS

TINSLEY R. HARRISON, M.D.
DALLAS, TEXAS

Rest of injured parts and of diseased bodies is probably the oldest and most valuable of all methods of treatment, with the possible exception of psychotherapy. Nevertheless we seem from time to time to forget that this therapeutic method—like all others—may lead to untoward results when utilized either injudiciously or excessively. Within the past three decades there has developed a tendency to regard prolonged rest in bed and complete abstinence from normal economic activity as the sine qua non of the proper management of the more serious forms of heart disease. My purpose in the present report is to review certain experimental and clinical observations which seem to indicate that this concept may be unsound.

During the eighteenth and nineteenth centuries, while the basic framework for our present understanding of heart disease was being fashioned, little emphasis was placed on the desirability of rest as it is now employed. Such astute observers as Withering¹ and Heberden² scarcely mentioned it in their works. Indeed, Heberden cites a patient with angina pectoris "who set himself the task of saving wood for half an hour every day and was nearly cured." Similarly, William Stokes³ utilized graduated exercise for patients with various cardiac disabilities. His contemporaries were apparently not in entire agreement with him on this point, but if any of them advocated prolonged and rigid rest in bed as a method of treating heart disease I am not aware of it.

In view of the plans of therapy often employed at present in the treatment of diseases of the coronary arteries, the personal case histories of two famous physicians are of interest. In 1773 John Hunter had, at the age of 45, an attack of severe epigastric pain. This could have represented myocardial infarction, but from the description given by his brother-in-law Everard Home⁴ the diagnosis seems doubtful. In 1785 he began to have severe anginal attacks at rest and within a few weeks experienced more prolonged periods

of pain which were in all probability caused by myocardial infarction. From this time until his sudden death in 1793 he had numerous seizures induced by effort or by emotion. At autopsy he had extensive disease of the coronary arteries, calcification of the aortic valves and two large scars which presumably represented old infarcts. During his later years he continued to be quite active, did much of his best work and apparently never remained in bed for any long period of time. Nevertheless he lived at least eight and possibly twenty years after the onset of symptoms indicating serious heart disease. Is one to assume that he would have lived longer if he had lived the life of semi-invalidism to which we so often condemn the modern patient with "coronary symptoms"? Would his happiness have been decreased or increased by such a regimen?

The case history of Sir James Mackenzie⁵ is perhaps even more striking. He began to have minimal attacks of angina of effort in 1907 and had severe attacks which probably represented infarction in 1908. He lived until 1925 and during this time had many seizures of mild pain and several severe and prolonged attacks. The autopsy revealed extensive atheroma of coronary branches and several healed infarcts. During the first fifteen years after the onset of his anginal attacks he continued to play golf until finally forced to desist by the progressive decline in exercise tolerance. Even so he led an active and useful life for seventeen years after myocardial infarction and, as far as I am aware, never spent more than a few days in bed at any time. Are we justified in assuming that he would have lived longer or enjoyed more happiness if he had been forced to remain in bed for several months after his infarction and if his permanent plan of living had been drastically restricted? Was the father of modern cardiology a poor therapist in regard to his own case? Questions such as these which permit no dogmatic answers should lead one to adopt an open mind regarding the desirability of prolonged and rigid rest in patients with cardiac disorders.

My own interest in the possibility that rest might be abused as a therapeutic method began in 1927, when I had occasion to visit a number of European clinics and to observe that patients with congestive failure were often allowed to sit up in chairs and to walk about the wards. At the time this seemed to be a shocking practice, but doubts so aroused were later strengthened when I learned that Sir James Mackenzie had handled patients in a similar manner.⁶ During the next several years a large group of patients—both Negro and white—were under observation in the cardiac clinic at the Vanderbilt University Hospital. The scarcity of ward beds for Negroes forced one to treat all except the most urgent cases of heart failure in this race in the out-

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Read in a symposium on "The Abuse of Rest in the Treatment of Disease" before the Section on Experimental Medicine and Therapeutics at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

1. Withering, William: An Account of the Foxglove, Birmingham, G. G. J. & J. Robinson, 1785.

2. Heberden, William: Commentaries on the History and Cure of Diseases, London, T. Payne, 1802.

3. Stokes, William: Diseases of the Heart and Aorta, Dublin, Hodges & Smith, 1854.

4. Home, E.: Hunter, John: A Treatise on the Blood, Inflammation and Gunshot Wounds, to Which Is Preixed a Short Account of His Life by Everard Home, Philadelphia, T. Bradford, 1796.

5. Willus, F. A.: Cardiac Classics, St. Louis, C. V. Mosby Company, 1941, p. 795.

6. Mackenzie, J.: Diseases of the Heart, ed. 4, London, Oxford University Press, 19-5, p. 313.

patient department, while most of the white patients were admitted to the wards as soon as evidences of heart failure were observed. After several years had elapsed I began to gain the impression that the number of old friends and familiar faces was greater in the Negro than in the white group. The matter was never studied statistically, but a little later the same general problem was approached somewhat differently by Williams and Rainey,⁷ who analyzed the records at the Vanderbilt University Hospital for the immediate causes of death as found at autopsy in the patients with heart diseases during a ten year period. These authors found that relatively few patients were dying of an uncomplicated cardiac failure and that the three great causes of death in patients who were admitted to the hospital with this disorder were infarction of the lungs, pneumonia and uremia. Their work suggested that at least some of the chief causes of death in such patients represented conditions which tended to develop under a state of complete rest and which might have been to some extent prevented by mild muscular activity.

Following the studies of Williams and Rainey, observations were carried on during a period of several years, first at the Vanderbilt University Hospital and later in the North Carolina Baptist Hospital. In these studies an attempt was made to divide alternate cases of congestive failure into two groups, "three week cardiacs" and "three day cardiacs," the designations referring to the duration of time after admission in which a period of rigid rest was enforced. Although several hundred patients were so studied, the groups were not large enough to warrant statistical analysis, since such variables as age, sex, race, etiologic factors, severity of congestive failure and complicating diseases made accurate comparison impossible. The only information which came from the study was the conclusion that the "three day cardiacs" were happier patients and that no evidence of higher mortality was found in this group.

During the fifteen years in which the effects of rest have been studied in subjects with congestive failure, a large number of patients with myocardial infarcts have been observed, and I have been impressed with the frequency of a second myocardial infarct as well as the high incidence of pulmonary infarction occurring after two or more weeks of rigid bed rest. However, there has been no control group who have been allowed to follow the self-prescribed treatment of John Hunter and Sir James Mackenzie, in terms of forsaking the bed and resuming activity as soon as the subjects desired it. Hence, here again no definite conclusions can be drawn as to whether prolonged and rigid restriction of activity increases or decreases mortality. However, one point has become increasingly clear and that has been that the incidence of postinfarctional cardiac neurosis is decidedly greater in those subjects who have been kept in bed for several months.

The clinical studies which have been described have been inconclusive because of the difficulty in controlling all of the many variable factors. For this reason an experimental attack on the problem was undertaken two years ago at the Bowman-Gray School of Medicine in conjunction with Dr. Wilbur C. Thomas.⁸ The work has been reported in detail elsewhere and will only be summarized here. Standardized myocardial injury was

induced in rats by burning the surface of the left ventricle, and the animals were subjected to various types of postoperative care. Those rats which were treated by extreme limitation of muscular movement through the use of cages so small as almost to fit the animal and to prevent turning around exhibited much higher mortality than did the controls who were allowed to wander at will in rat cages of the usual size. (It is recognized, of course, that such an experiment is more analogous to the use of the strait-jacket than to enforced bed rest in patients.) When the spontaneous activity of rats was studied by the use of the optional treadmill, it was found that most of the animals voluntarily chose to take as much exercise per day within five to seven days after cardiac injury as they had been undertaking during the preceding control period of one or two weeks. Observations were then made on rats in which muscular activity was enforced by making the animal swim for periods of ten to fifteen minutes several times daily. It was found that if one waited as long as even a few days after cardiac injury, such relatively strenuous muscular exercise did not cause any significant increase in the mortality. Obviously, this does not mean that patients with acute myocardial injury should be allowed strenuous exercise within such a short period, because the rate of healing processes in the heart is considerably faster in the smaller animal than in man. However, the results did appear to be fairly conclusive in indicating that under controlled experimental conditions excessive restriction of muscular activity was harmful, while the return to normal activity within a few days seemed to exert no detectable injurious effects. The results, therefore, support the clinical impression previously arrived at on the basis of less carefully controlled observations and have led me to question seriously the validity of current methods of handling patients with the graver forms of heart disease. Final conclusions are not justified until further observations on patients have been made, but in the meantime one may perhaps venture to enumerate certain theoretical considerations concerning the advantages and disadvantages of prolonged and rigid rest in bed.

Among the hypothetical advantages of prolonged rest in bed following myocardial infarction are the following:

1. Decreased liability to cardiac rupture. This consideration is probably especially important during the first two weeks, because most instances of rupture occur within this period.

2. During circulatory collapse the upright position aggravates cerebral anoxia. However, in most patients circulatory collapse of serious degree has disappeared within the first week or two and likewise, from this standpoint, there is rarely need for rigid rest of more prolonged duration.

3. One might expect that prolonged rest in the recumbent position would lead to a firmer and smaller scar. This, however, can be questioned because the cardiac work per beat is probably no greater and may be somewhat less in the sitting than in the recumbent posture, the decline in blood pressure in the recumbent position being usually at least counterbalanced by the increased stroke volume in this posture.

Among the theoretical disadvantages of prolonged rest in bed in patients with myocardial infarction are the following:

1. Given a tendency toward the development of congestive heart failure, edema of the lungs will tend to occur more readily in the recumbent position.

7. Williams, R. H., and Rainey, J.: Cause of Death in Patients with Congestive Heart Failure, *Am. Heart J.* 15: 385-394, 1938.

8. Thomas, W. C., and Harrison, T. R.: The Effect of Artificial Restriction of Activity on Rats with Experimental Myocardial Injury, *Am. J. M. Sc.*, to be published.

2. Rigid restriction of activity reduces flow of blood to a minimum and may tend to favor development of thrombi either in the venous system with subsequent pulmonary infarction or in the arteries and more especially in branches of the coronary system other than the ones originally affected. Hence, both pulmonary infarction and a second myocardial infarction are frequently observed in patients subjected to unusually prolonged and rigid rest.

3. "Hypostatic pneumonia" is especially apt to occur in elderly subjects who remain in bed over a long period of time.

The discussion thus far has been centered around the physical consideration of prolonged rest and indicates that there are theoretical reasons both for and against such a method of treatment. However, not only the somatic but also the psychologic factors need to be taken into account. Once an individual has recovered from the initial phases of myocardial infarction and has reached an *asymptomatic state*, the *normal desire* to resume activity occurs and each additional week of complete rest can usually be achieved only at the expense of increased urgency on the part of the physician. Such a sequence of events leads many patients to exaggerate to themselves the seriousness of their physical condition and all too frequently results in the development of a postinfarctional anxiety state. It therefore is common to observe rather severe manifestations of "cardiac neurosis" induced not so much by the "heart attack" but by the physician's management of the heart attack. One sees many patients who live through years of psychic invalidism brought about as the result of the physician's insistence on excessive caution during a period of many months. Even if we could be certain that such excessive caution would prolong life in an occasional patient—and there is grave doubt concerning this—there still remains the question as to whether the objective so achieved merits the unhappiness produced in a larger group of patients by rigid restriction.

SUMMARY

A review of some recent experimental evidence and certain clinical considerations leads to the following general conclusions:

1. Extreme restriction of body movement causes increased mortality in animals with experimental myocardial injury.

2. There is no proof that rest in bed carried out for many weeks after symptoms have disappeared is of value in the physical management of the patient with congestive failure, angina pectoris or myocardial infarction. The available evidence, while perhaps not conclusive, points to the contrary, and more especially so if the recumbent posture is enforced while the patient is kept in bed.

3. From the psychic standpoint there is a definite disadvantage in the enforcement of a rigid regimen after the acute phase of the illness has subsided.

4. Until more definite information is available, the following tentative suggestions are offered for a plan of treatment which obviously requires modification according to the status of the individual patient:

(a) Persons with congestive heart failure should be allowed out of bed for several hours a day, as soon as severe dyspnea at rest has subsided.

(b) Following myocardial infarction, recumbency should not be prescribed for a longer period than two to three weeks after the more acute and alarming

symptoms have subsided. The recumbent position should not be enforced on patients who are more comfortable sitting. Other things being equal, it would appear wise to allow elderly patients out of bed sooner than younger ones.

(c) Rest in bed for more than a day or two at a time probably has no place in the treatment of angina pectoris except in those patients who are especially liable to develop in the immediate future myocardial infarction, as indicated by increasingly frequent and prolonged attacks at rest.

(d) In all patients with the severe forms of heart disease activity should be kept below the symptomatic threshold, i. e. should be less than that amount which induces dyspnea or pain.

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THE ABUSE OF REST IN OBSTETRICS

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BALTIMORE

There are doubtless many ways in which rest may be abused in obstetrics and gynecology, ways of clinical import. But in view of the critical times through which our country is passing, it would seem particularly appropriate to consider two abuses of rest which not only bear on the health and happiness of every married woman but carry also far reaching implications in regard to the present and future welfare of our nation. I refer, first, to the abuse of rest as it affects pregnant women in industry and, second, to the abuse of rest of the female reproductive organs as it pertains to so-called "child spacing."

It has been estimated that about 18 million American women are employed today in industry, or some 36 per cent of all our women of 15 years and over. Of this group $6\frac{1}{2}$ to 8 million, or 13 to 16 per cent of all women, are being utilized by war industries alone (Hesseltine¹). Since more than 50 per cent of the women employed are married,² a substantial number of pregnancies is to be expected. But just what the actual incidence of pregnancy may be among these women is difficult to ascertain with any degree of precision because of the rapid turnover of workers, particularly if pregnancy occurs, and also because early gestations may be concealed and even denied; moreover, the statistics vary widely in different establishments. In 1941 one large industrial concern employing 20,000 women reported an annual incidence of 72.8 pregnancies per thousand women workers.² Pregnancy rates reported by some firms are much lower than this and range upward from 15 pregnancies per thousand women workers annually. Even, however, if the very minimal figure obtainable is used, it would appear that some quarter of a million women engaged in industrial work become pregnant in the course of a year, and the actual number may well be several times this.

The problems which would be presented by pregnant women in industry were anticipated by several

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1. Hesseltine, H. C.: *Specific Problems of Women in Industry*, J. A. M. A. 124: 692 (March 11) 1944.

2. Silverman, Charlotte: *Maternity Care and Maternity Care Practices in Industry*, West. J. Surg. 52: 152, 1944.

agencies shortly after Pearl Harbor. Thus in July 1942 the Children's Bureau and the Women's Bureau of the U. S. Department of Labor, in consultation with a group of representative industrial hygienists, women personnel directors and obstetricians, met and recommended certain standards for maternity care in industry;³ and shortly afterward the Committee on Health of Women in Industry of the Section on Obstetrics and Gynecology of the American Medical Association drafted similar recommendations.⁴ Both bodies agreed that, ideally, the pregnant woman should not be employed. But they were also unanimous in their belief that the employment of pregnant women in industrial plants was entirely feasible and safe, provided certain safeguards could be thrown about them. Among these safeguards were facilities for adequate antepartum care, avoidance of work on the night shift, rest periods, the avoidance of occupations which demand heavy lifting, continuous standing or a good sense of bodily balance and, finally, a minimum of six weeks' leave before delivery.

In whatever class of society, a sedentary, unoccupied life is not conducive to the health of the expectant mother. In World War I, when large numbers of pregnant women were employed in Great Britain in munition and other factories, medical witnesses agreed that light factory work was not prejudicial to the health of expectant mothers;⁵ moreover, in a study carried out by the Women's Industrial Council of that country on 934 women industrial workers the conclusion was reached that "there is practically nothing to choose in quality of maternity care between those who go out to work and those who stay at home."⁶ In the present war O'Sullivan and Bourne have made similar observations on a series of pregnant women in a factory doing specialized work in London and have reached similar conclusions.⁶

In view of the recommendations of the two American committees mentioned and in the light of the British experience with employed pregnant women in this and the last war, it might appear that the problem needs no further discussion since it seems to have been clearly established that it is just as safe, with certain reservations, for pregnant women to work in industrial plants as it is for them to work at home. Actually, in this country at least, the problem is far from solved for the very cogent reason that our industrial plants, in the main, will have nothing to do with pregnant women and summarily discharge them as soon as pregnancy is discovered. In a valuable recent survey of seventy industrial establishments, Charlotte Silverman² found that among the sixty-two firms which had established some kind of a maternity program the policy in 50 per cent was dismissal on notification or discovery of the pregnancy or during the first three months. The chief basis for this regulation is fear of the legal responsibility associated with the employment of pregnant women, especially the concern that the occurrence of abortion may be attributed to work done in the factory. As a matter of fact, in Silverman's entire survey she was able to learn of only 1 instance in which a worker charged

that abortion had occurred as the result of her employment.

From the point of view of the industrialist and the nation's manpower, this policy of excluding pregnant women from industrial plants eliminates from utilization a large number of willing, valuable and skillful workers. From the point of view of maternal welfare in this country it causes workers to conceal their pregnancies, whereby they forfeit the advantages of early antepartum medical attention; and, in not a few instances, it throws them into the hands of the criminal abortionist. Furthermore, it fosters an unwholesome attitude toward maternity and tends to make mandatory the use of contraceptive procedures, all at a time when our nation will be needing these babies.

This abuse of rest imposed on pregnant women by most industrial concerns is an unjust and unnecessary penalty for motherhood and stands in need of correction. As a step toward this end, Miss Caroline G. Olsen, R.N., has prepared a "Suggested Pregnancy Adjustment Plan for Women in Industry"⁷ which merits wide consideration by physicians and industrialists alike. Her program is a concrete and workable protective plan for the supervision of women in industry in such a form that industrial plants should be able to put it in force without serious difficulty. It is to be hoped that through this and other means industrialists may become aware of their responsibility in this important problem.

The second abuse of rest in obstetrics concerns itself with the purported necessity of 'several years' rest between pregnancies, if the best interests of mother and child are to be served. Based on an observation made by Woodbury⁸ in 1915 this teaching that babies are less likely to survive if born at intervals of less than two years has had wide circulation and has become both to the physician and to the public almost an axiom of maternity. It is responsible, more than any other doctrine, for the tendency to procrastinate childbearing and, in turn, this procrastination is responsible, more than any other factor perhaps, for the low birth rate among certain very desirable social and income groups. In a recent statistical study which has been reported in detail elsewhere,⁹ it has been shown that: 1. Infants born from twelve to twenty-four months after a previous viable delivery (that is, during the second year) have at least as low a stillbirth and neonatal mortality as do infants born after longer intervals. 2. The longer the interval between births, the more likely the mother is to suffer from some form of hypertensive toxemia of pregnancy. The incidence of this complication is lowest when the interval is twelve to twenty-four months, significantly higher when it is twenty-four to forty-eight months, and much higher when it exceeds four years. 3. In patients who have had a previous hypertensive toxemia of pregnancy, the likelihood of repetition becomes progressively greater as the interval becomes longer. 4. The incidence of premature labor, anemia, postpartum hemorrhage and puerperal infection is no greater when the interval is twelve to twenty-four months than when it is longer, nor are mothers in this brief interval group less able to nurse their babies. The weight of the mature babies was approximately the same regardless of the interval.

3. Standards for Maternity Care and Employment of Mothers in Industry. Prepared by Children's Bureau and the Women's Bureau of the U. S. Department of Labor, J. A. M. A. 120: 55 (Sept. 5) 1942.

4. Hesselting, E. C., and others: Women in Industry: Preliminary Report of the Committee on Health of Women in Industry of the Section on Obstetrics and Gynecology: Recommendation to the Council on Industrial Health, J. A. M. 121: 799 (March 13) 1943.

5. Women in Industry, Report of the War Cabinet Committee on Women in Industry, London, His Majesty's Stationery Office, 1919.

6. O'Sullivan, J. V., and Bourne, L. B.: Supervision of Pregnant Women in Factory Employment, Brit. M. J. 2: 103, 1944.

7. Olsen, Caroline G.: Suggested Pregnancy Adjustment Plan for Women in Industry, Nat. Safety News, February 1944.

8. Woodbury, R. M.: Causal Factors in Infant Mortality: A Statistical Study Based on Investigations in Eight Cities, Publication 142, Department of Labor, Children's Bureau, 1925.

9. Eastman, N. J.: The Effect of the Interval Between Births on Maternal and Fetal Outlook, Am. J. Obst. & Gynec. 47: 445, 1944.

These recent findings so contradict the old, deep rooted teaching that frequent childbearing is dangerous, as to make them seem on first consideration rather incredible. Yet they are based on two separate investigations, one covering over 5,000 cases and the other over 33,000, and their statistical validity is beyond question. Moreover, if they are considered in the light of maternal and fetal mortality rates according to the age of the mother they appear altogether logical and, indeed, are exactly what one would expect. Child spacing, by definition, means maternal aging; and after a certain optimum period, probably in the early twenties, maternal aging means inevitably somewhat higher risks both to mother and to child. All experience and all statistics support this statement. Whatever advantage is gained by a rest period of several years between births seems to be offset and in some respects more than counterbalanced by the aging factor, for it must never be forgotten that the most important talisman which a childbearing woman can possess is youth.

THE ABUSE OF REST AS A THERAPEUTIC MEASURE IN SURGERY

EARLY POSTOPERATIVE ACTIVITY AND REHABILITATION

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Rest, as a therapeutic measure, is fraught with hazard. Prolonged periods of recumbency in bed are anatomically, physiologically and psychologically unsound and unscientific. Conversely, early restoration of medical and surgical patients to normal life is an essential feature of modern convalescent supervision. Prompt postoperative activity and walking provide manifest, safe and agreeable modifications in customary convalescent care by which ready rehabilitation may be achieved in the realm of surgery.

The desirability of such a program for patients of advanced years has long been recognized; surgical wounds heal firmly even though early postoperative activity is encouraged. Infants and young children cannot be kept quietly at rest in bed after operation, yet postoperative hernias are not common. Utilization of this knowledge in the management of patients between the extremes of life promotes an equally uneventful convalescence. Early rising from bed and walking preclude the protracted period of inertia which traditionally follows in the wake of surgery and encourage the prompt resumption of normal activity.¹

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Read in a symposium on "The Abuse of Rest in the Treatment of Disease" before the Section on Experimental Medicine and Therapeutics at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

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PRESENTATION OF DATA

My purpose in this report is to present observations on the postoperative convalescence of 100 consecutive patients who were allowed to sit in a chair and to walk on the first day after major operations, and to compare these studies with similar observations on an equal number of consecutive, unselected patients who remained in bed for the traditional period of ten to fifteen days after operations of the same type and magnitude.

For the sake of simplification the operative procedures have been limited to hernioplasty for inguinal, femoral, umbilical, epigastric and incisional hernias; appendectomy for acute appendicitis, including cases of perforation with abscess and peritonitis; cholecystectomy with and without exploration and drainage of the common duct, and hysterectomy and other major pelvic operations performed through an abdominal incision. The patients in both groups were all over 12 years of age.

The temperature and pulse rate during the postoperative convalescence, the number of days of confinement to bed, the length of time spent in the hospital and the total duration of the convalescent period have been chosen as criteria for comparison. The convalescence is considered as beginning with the first postoperative day and continuing until the patient resumed full activity at the work which was interrupted on entrance to the hospital for surgical treatment.

The comparative studies after each type of operation are presented graphically and in tabular form. The total cases are also discussed in their entirety.

1. *Hernioplasty*.—This group includes 39 patients who were up and walking on the first day after operation and an equal number who followed the traditional regimen of twelve days in bed after repair of a single rupture and fourteen or more after bilateral or ventral hernioplasty.

Presented in chart 1 are curves representing rectal temperatures and pulse rates before and during the first ten days after operation. These were plotted by averaging the highest levels recorded for every patient in each category on each day. They thus represent maximal elevations during the convalescent period. No significant variations are apparent in either the temperature or the pulse rate of the early and late patients.

The types of hernias, the average and extreme ages of the patients, the number of days in the hospital and the total weeks of convalescence are also tabulated in chart 1. Those patients who were permitted early activity spent an average of 9.1 days in the hospital and required 5.6 weeks for convalescence. Seven of these hernias were complicated by incarceration or strangulation of the omentum or intestine. The patients in the control series averaged 15.2 days in the hospital and did not return to work until ten weeks after operation. Incarceration or strangulation was a complicating factor in 5 cases.

All but 3 patients have been reexamined in the follow-up clinic at varying intervals. No recurrences have developed among those who were up on the first postoperative day; 1 inguinal and 1 femoral hernia recurred among the patients who remained recumbent for twelve days or more.

2. *Appendectomy*.—The diagnosis of acute appendicitis in all cases was supported by microscopic examination of the appendix. Among the 22 patients who were allowed out of bed on the first postoperative

day were 1 abscess and 4 cases of local peritonitis; among the same number of controls were 5 cases of peritonitis of comparable severity; all were confirmed by positive bacteriologic cultures.

McBurney and right rectus incisions with and without drainage were used in both groups (chart 2).

days after operation. All 3 ruptures were located at the medial angle of oblique subcostal incisions.

The mean temperature and pulse rate of the patients who were up on the first postoperative day were significantly lower than were those of the patients who remained in bed. Their convalescence in the hospital was materially shortened and their total average period of rehabilitation was reduced one half by early postoperative activity (chart 3).

4. *Abdominopelvic Surgery.*—In this group are 25 patients who were up and walking on the first postoperative day and an equal number who remained in bed for an average of 13.4 days. The lesions and abnormalities which required operative therapy are tabulated in chart 4. Supravaginal or panhysterectomy was performed ten times in the former group and eight times in the latter; salpingectomy, oophorectomy or salpingo-oophorectomy without removal of the uterus, twelve times in the early group and eight times in the late. Only 1 patient was allowed up on the first day after repair of a cystocele, rectocele and prolapse.

The average age of the patients in the early and control series was almost exactly the same. The length of time spent in the hospital after operation and the total period of convalescence for the patients who were allowed early activity were 11.7 days and 6.7 weeks respectively; for those whose regimen followed the former temporal pattern, the averages were 16.7 days and 11.6 weeks.

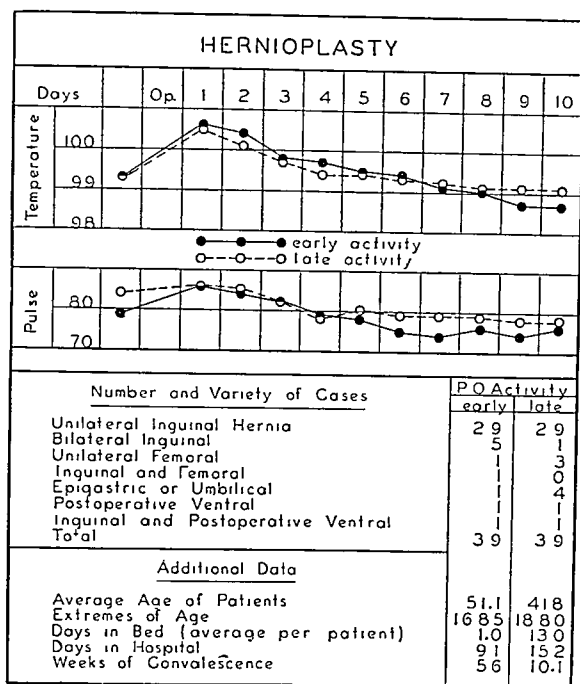


Chart 1.—Clinical and additional data relative to 39 patients who were out of bed and walking on the first postoperative day after hernioplasties, compared with an equal number who remained recumbent for thirteen days.

The postoperative convalescence of those patients who were allowed to sit in a chair and to walk on the first postoperative day was uncomplicated. Their mean temperature and pulse rate were consistently lower than were the temperature and pulse of those who remained in bed for an average period of 9.8 days (chart 2). Postoperative residual intraperitoneal abscesses developed in 2 of the latter group; there were none among the patients who were ambulatory early.

It is significant that the patients who were activated promptly returned to work in 4.8 weeks, while those who remained in bed for the customary convalescent period did not resume their usual occupation until 8.7 weeks after operation.

3. *Cholecystectomy; Choledochostomy.*—Fourteen patients were ambulatory on the first day after operations on the biliary tract; compared with these is an equal number who remained in bed for an average period of 15.3 days. Cholecystectomy was performed through an oblique subcostal incision six times in the former group and five times in the latter; through a vertical right rectus incision twice in the first and four times in the second group. All wounds were drained with a cigaret wick down to the foramen of Winslow. In addition to cholecystectomy, the common duct was explored and drained six times in the ambulatory group and five times in the control series. Four of the former were visibly jaundiced at the time of operation; all wounds healed firmly. One patient who was not icteric developed a late incisional hernia subsequent to discharge from the hospital. Two such hernias occurred in patients who remained in bed sixteen and twenty

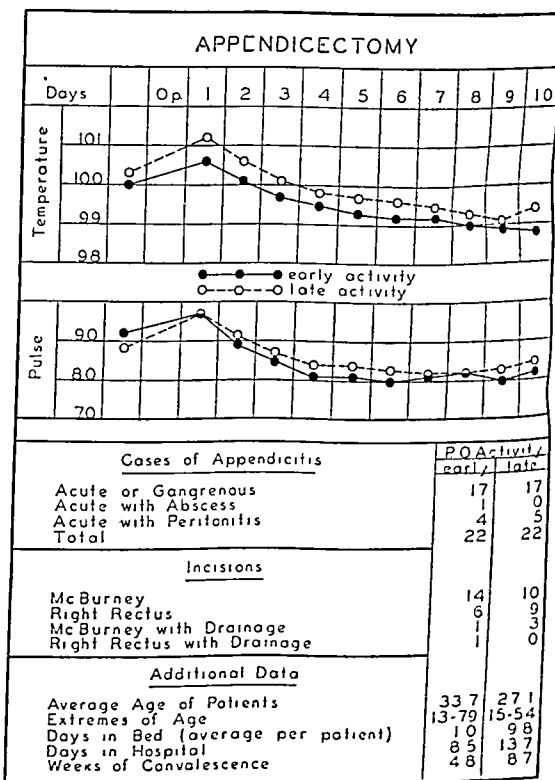


Chart 2.—Clinical and additional data relative to early and late activity during convalescence from appendectomy for acute appendicitis.

Composite graphs of the temperature and pulse rate are presented in chart 4.

5. *Total Cases.*—All operations were of major magnitude; many were performed as emergencies; others were necessitated by the presence of mechanical abnor-

malities, acute or chronic inflammatory lesions, tuberculosis or neoplasm.

The mean age of the total group of 100 patients who were permitted to sit in a chair and to walk on the first day after operation was 43.4 years. The age of an equal number of control patients was 38.7 years; this group

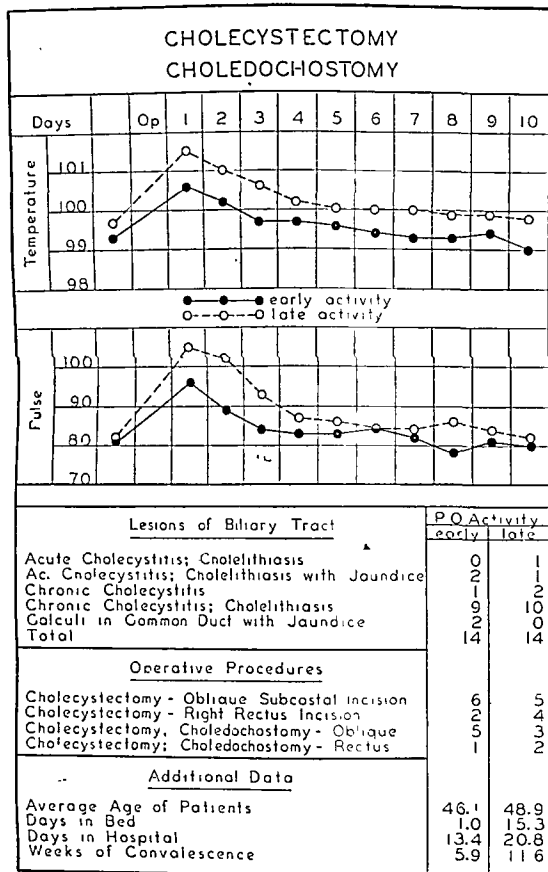


Chart 3.—Data relative to early and late activity following cholecystectomy and choledochostomy.

averaged 12.7 postoperative days in bed. The ambulatory patients spent 10.3 days in the hospital, while those who followed the traditional convalescent program averaged 16.1 days (chart 5). This represents a saving of 580 hospital bed-days. In a locality where many of the patients live close at hand, this economy of beds may be greatly augmented by even earlier discharge from the hospital. Cutaneous sutures may be removed at home or in the outpatient department. Such an individual is well able to travel short distances by automobile on the third or fourth postoperative day. In rural areas, where transportation is a problem, such premature dismissal is not feasible.

The average period of convalescence after early activity was 5.7 weeks; after traditional postoperative management, 10.3 weeks. These figures indicate that, by the elimination of deconditioning secondary to a period of ten to fifteen days of recumbency following major surgery, the patient may return with comfort and safety to his usual occupation four and one-half weeks earlier than has been customary when traditional routine is followed.

If the temperature and pulse rate are regarded as accurate indexes of convalescence, such early activity is in no way deleterious (chart 5). However, other

postoperative complications may arise which are not reflected in the clinical chart.

6. Postoperative Complications.—Postoperative complications may be classified as local (those which involve the wound and adjacent tissues), pulmonary, cardiac, vascular, genitourinary, gastrointestinal and general. Following this classification, the incidence of complications which were observed in these two unselected groups of 100 cases each is given in table 2.

No local complications of major significance occurred because of early activity. No wounds disrupted. One incisional hernia developed several months after operation, an incidence of 1 per cent. One infection was strictly an operative mishap. The 2 hematomas were of minor importance but may conceivably be attributed to early ambulation. Two incisional hernias, 2 recurrent hernias, 1 hematoma and 1 silk sinus occurred among the patients who were kept recumbent for the customary postoperative periods.

Serious pulmonary complications were likewise more common among the patients who remained in bed (table 2).

No cardiac complications were observed among the ambulatory patients. In this group were 8 persons between 70 and 80 years of age and 2 who were over 80 years old.

The incidence of vascular complications was reduced but not eliminated. This phase of the subject is discussed in some detail later.

Postoperative inhibition of the bladder was rather common in both groups. It is of significance, however,

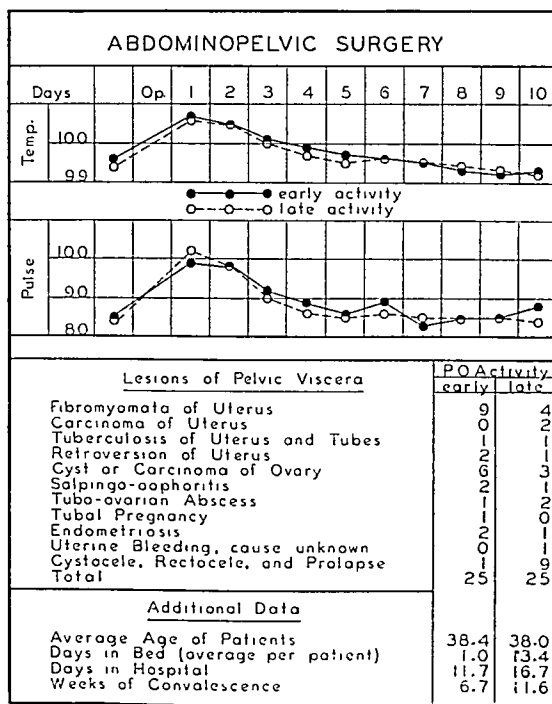


Chart 4.—Data relative to early and late activity after pelvic surgery through an abdominal incision.

that in the ambulatory group the difficulty in voiding usually occurred during the night of the day of operation. Only 2 patients required subsequent catheterizations after they were up and about. Repeated catheterizations were much more frequent among the patients whose convalescence was spent in bed.

Postoperative dilatation of the stomach and fecal impactions occurred only in this group.

Fever which could not be explained by reaction to operation or to the disease for which operation was performed was observed in 5 patients among the recumbent group.

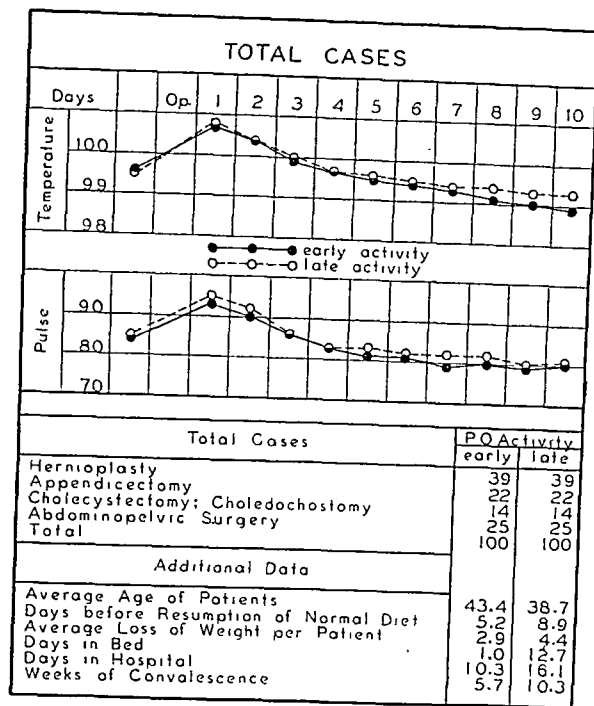


Chart 5.—Composite clinical records and summary of additional data relative to all patients who were up and walking on the first day after major surgery compared with an equal number who remained recumbent for 12.7 days after operations of similar scope; 100 patients in each group.

In total there were 17 postoperative complications among the hundred patients who were out of bed on the first day and 46 among the same number in the unselected control group.

6. *Sutures*.—Accurate reapproximation of tissues is compulsory, if early activity is planned, preferably with nonabsorbable, interrupted sutures except in the peritoneum, which may be closed with a continuous stitch. Additional supporting sutures of silkworm gut or silver wire may be desirable for obese patients and in the presence of infection. Silk was employed most frequently in the cases herewith reported (table 1). Catgut alone was not used sufficiently often to be certain of its integrity without reinforcement by stay sutures of nonabsorbable character. However, proper and accurate coaptation of tissues, meticulous hemostasis, assiduous care in the prevention of infection, and gentle manipulation of tissues are undoubtedly of more importance than the nature of the material with which the wound is sutured.

COMMENT

1. - *Physiologic Considerations*.—(a) *Pulmonary*: Elevation of the diaphragm in recumbent position, pooling of tracheobronchial secretions in the finer ramifications of the bronchial tree, the patient's disinclination to cough because of pain, the limitation of maximal respiratory excursions and invariable reduction in vital capacity after laparotomy or hernioplasty² all play some

role in the etiology of postoperative atelectasis and pneumonia. The volume of tidal air, tension of oxygen in the alveolar spaces, oxygen saturation of arterial blood, and the depth and rate of respiratory movements are increased by exercise. Hence early postoperative walking may reasonably be of definite therapeutic value in the prevention of pulmonary complications. Some authors believe that the incidence of such complications is reduced 75 to 80 per cent by prompt ambulation.³

(b) *Circulatory*: The circulation time from the ankle to the carotid sinus is decreased by elevation of the extremity and by active exercise of the leg with the

TABLE 1.—Various Materials Used for Sutures

Material	Activity	
	Early	Late
Silk	85	72
Silk and silkworm gut	1	2
Silk and silver wire	0	1
Silk and fascia	1	0
Catgut	7	3
Catgut and silkworm gut	1	2
Catgut and silver wire	5	1
Not stated	0	14
Total	100	100

patient in the supine position.⁴ The additional specific consequence of walking in the erect posture has not been studied, but the general effects of muscular activity on the venous circulation of the lower extremities are well known. Diminished venous return is considered

TABLE 2.—Postoperative Complications Incidental to Early and Late Activity

Complication	Postoperative Activity	
	Early	Late
Local		
Disruption of wound	0	0
Subsequent herniation	1	1
Recurrence of hernia	1	2
Infection of wound	1	1
Residual intraperitoneal abscess	1	1
Hematoma in wound	2	1
Silk sinus	1	1
Pulmonary		
Massive atelectasis	1	1
Bronchopneumonia	1	1
Infarct of lung, embolus	1	2
Suspected infarct of lung	1	1
Bronchitis	2	1
Cardiac		
Coronary thrombosis	1	1
Angina pectoris	1	1
Paroxysmal auricular fibrillation	1	1
Vascular		
Ileofemoral thrombophlebitis	1	1
Thrombosis of deep veins of legs	1	1
Suspected thrombosis of veins of legs	1	3
Genitourinary		
	6	3
	2	11
Gastrointestinal		
Dilatation of stomach	1	3
Fecal impaction	1	2
General		
Unexplained fever	1	5
Total	17	61

by many authors to be the most significant single etiologic agent in the pathogenesis of postoperative thrombosis in the deep veins of the leg and is a physio-

3. Newburger, Bernhard: Early Postoperative Walking, *Surgery* 14: 142-154 (July) 1943.

4. Smith, L. A.; Allen, E. V., and Craig, W. M.: Time Required for Blood to Flow from the Arm and from the Foot of Man to the Carotid Sinuses: I. Effect of Temperature, Exercise, Increased Intramuscular Tension, Elevation of Limbs and Sympathectomy, *Arch. Surg.* 111: 171, 1376 (Dec.) 1940.

2. Powers, J. H.: Vital Capacity: Its Significance in Relation to Postoperative Pulmonary Complications, *Arch. Surg.* 17: 394-323 (Aug.) 1928.

logic factor which presumably may be directly and favorably influenced by early activity and walking. Methods to decrease venous stasis and the incidence of thrombosis by position and exercises in bed have not been universally successful. Actual walking, however, is said by many authors to minimize the development of thrombosis.³

The occurrence of 1 case of ileofemoral thrombophlebitis and 1 of suspected thrombosis in the deep veins of the leg among the ambulatory patients (table 1) indicates that early postoperative walking does not entirely circumvent the formation of thrombi; it may, however, obviate the liberation of emboli of sufficient size to precipitate a fatal postoperative catastrophe. A thrombus of this magnitude does not usually develop in an active venous circulation.

(c) *Gastrointestinal:* Postoperative dysfunction of the gastrointestinal tract is uncommon when early convalescent activity is permitted. Abdominal distention is rare. Enemas, rectal tubes and poultices are seldom necessary. On the fourth or fifth postoperative day a regular diet may be accepted with neither distaste nor discomfort (chart 5).

(d) *Musculoskeletal:* The absence of asthenia has impressed all observers who have advocated early ambulation after surgical operations and after rigid fixation of fractures. Demineralization of bones and atrophy of muscles, so common after prolonged periods of rest in bed, are entirely obviated. The convalescent period of reconditioning before return to normal activity is reduced to approximately one-half its former magnitude (charts 1, 2, 3, 4 and 5).

(e) *Reparative:* The attitude of the majority of surgeons toward the healing of wounds is one of conservatism, based in no small part on the teachings of Billroth, who believed that rest and protection were essential for proper repair of coapted tissues. Contrary to this orthodox opinion, those who have advocated early postoperative walking have observed no deleterious effect as a result thereof, no increase in pain, no greater frequency of disruption or hernia. Some authors claim an even kindlier and more rapid healing when patients are allowed to be up and about during the early postoperative convalescence.⁵

2. *Psychologic Aspects.*—The improvement in morale is striking. From previous experience, or from the tales of relatives or friends, many patients anticipate surgical operations with fear and apprehension. "Gas pains," bed pans, enemas and hypodermics are foreseen with horror. When such a patient learns that he is to get out of bed and walk on the first or second postoperative day, he is permitted the freedom of the ward on the third or fourth, and lead an essentially normal life shortly thereafter, his whole attitude toward the operation and his hospital experience undergoes a profound change. The fear of surgery and the discomforts of the convalescence may be largely eliminated by a program of accelerated activity.

3. *Economic Factors.*—Postoperative care is tremendously simplified. Within a few days patients are able to attend to their own requirements and also assist with a few simple duties in the ward. The services of a limited number of graduate nurses are thereby made more readily available for the essential treatment of patients who require professional attention.

Early discharge from the hospital effects an economy for the patient and an efficient utilization of beds by the institution.

Prompt rehabilitation insures a minimal loss of time from work and the early reestablishment of normal activity.

CONCLUSION

Prompt restoration of surgical patients to normal life is an essential feature of convalescent supervision. Early postoperative activity and walking provide manifest modifications in customary convalescent care by which the process of reconditioning may be largely eliminated and early rehabilitation achieved.

The indications for such a program are manifold; no contraindications are apparent in this study of 100 consecutive cases.

THE EVIL SEQUELAE OF COMPLETE BED REST

WILLIAM DOCK, M.D.

LOS ANGELES

It is rarely possible to ascribe to bed rest alone the disorders which become manifest in patients confined to bed during the treatment of disease or injury. Inter-current illnesses sometimes develop in spite of bed rest, as when myocardial infarction occurs during convalescence from a pelvic or orthopedic operation. In most cases the evil effects of complete bed rest are potentiated by anesthesia, narcotics or other medication or by the results of the original illness. But it must also be recognized that many disturbances of function, such as massive collapse of the lung, attributed to operation, illness, anesthesia or medication have become evident only because the patient was forced to spend hours or days in the dorsal recumbent position.

In any discussion of the effects of complete bed rest it is to be borne in mind that the disorders noted may have been aggravated, or even initiated, by a depression of activity and responsiveness due to psychic trauma, anesthesia or sedation. Even prolonged bed rest is rarely followed by serious physical sequelae when lively young patients are kept in bed without any sedatives, whereas rapid onset of fatal complications most commonly occurs when indolent obese elderly patients are confined to bed after prolonged anesthesia, and with enough pain to justify continued use of sedatives and narcotics.

The effects of hospital life and of bed rest on the psyche are so obvious and have been so clearly described by such novelists as Tolstoi and Balzac that most laymen are well aware of this hazard of therapy. At the present time the effects of complete bed rest on metabolism and on the structure and function of healthy volunteers are being subjected to a careful quantitative study. Bone atrophy,¹ muscular wasting² and vasomotor instability are not infrequent sequelae of bed rest, while constipation, cathartic habituation, backache and many other chronic disabilities may appear during bed

From the University of Southern California Department of Medicine. Read in a symposium on "The Abuse of Rest in the Treatment of Disease" before the Section on Experimental Medicine and Therapeutics at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

1. Allison, N., and Brooks, B.: Bone Atrophy: A Clinical Study of the Changes in Bone Which Result from Disuse, *Arch. Surg.* 5:499 (Nov.) 1922. Albright, F.; Burnett, C. H.; Cope, O., and Parson, W.: Acute Atrophy of Bone (Osteoporosis) Simulating Hyperparathyroidism, *J. Clin. Endocrinol.* 1:711 (Sept.) 1941.

2. Cuthbertson, D. P.: The Influence of Prolonged Muscular Rest on the Metabolism, *Biochem. J.* 23:1328, 1929. Cuthbertson, D. P.; McGirr, J. L., and Robertson, J. S. M.: Effect of Fracture of Bone on the Metabolism of the Rat, *Quart. J. Exper. Physiol.* 29:13 (March) 1939.

5. Newburger, Bernhard: Early Postoperative Walking: The Influence of Exercise on Wound Healing in Rats, *Surgery* 13:692-695 (May) 1943; footnote 3.

rest and persist for years or decades. The onset of obstructive uropathy or of pulmonary edema on confining elderly patients to bed are phenomena which interns in large city hospitals observe only too often. Nothing more will be said here of these serious complications or of the classic lesion due to bed rest—pressure necrosis or bed sore.

Other vertebrates, and notably the birds, share man's bipedal erect posture, but so far as I know no other animal lies on its back when ill. Indeed, it is almost impossible to conduct experimental studies of the effects of the dorsal recumbent posture, maintained for days or weeks, in any species but man. Normal sleep is associated with frequent changes from supine to prone or lateral positions, and this restless type of activity is usual also during the sleep of many patients confined to bed but not in shock, pain or prostration.

During his waking hours the patient treated by complete bed rest lies on his back, and he sleeps, or tries to sleep, in that position after operations or when kept in the orthopaedic or Fowler posture. Since this is not a restful way to sleep, sedatives are given to many patients who are required to live in this fashion. Thus the stage is set for many hours of inert recumbency, with shallow breathing and diminished muscle tone. The serious evil sequelae of complete bed rest may appear in a few days; a few phlegmatic or profoundly depressed patients may exhibit these disorders without receiving any narcotic or sedative.

The total metabolism and the muscle tone are obviously low in the type of patient just described. This decreases the volume of flow in all the vessels of the body, but if the patient lies flat at all times the venous pressure is low and the caliber of the veins small. In the abdomen, pelvis and legs the veins then are much smaller than when sitting up, as one can readily see if the veins of the back of the hand are observed when recumbent, with the hands at the level of the great trochanter, and when sitting up with the hands resting on the thighs. With the veins at this small caliber the velocity of blood flow will be high in spite of the decrease in volume of flow, but when the shoulders are propped up the veins of the pelvis and legs are dilated and the velocity of flow correspondingly reduced, possibly to one-tenth that when the veins are in the same plane as the heart. Frykholm³ felt that collapsed veins might have endothelial damage, predisposing to later thrombosis, but the fact is that the veins on the anterior aspect of the legs, which obviously are under least venous pressure, almost never become thrombosed during bed rest. Veins compressed and empty, due to pressure of the leg against the bed, may easily suffer endothelial damage and begin to thrombose while still nearly empty. Only when sitting or standing are these veins constantly dilated to their full caliber, but during paroxysms of coughing, or when bearing down to facilitate expulsion of flatus, feces or urine, transient maximal venous dilatation may occur even when one is lying perfectly flat. The formation of large clots propagated far along the system is made possible by the prolonged absence of sighing respiration, cough or bearing down and by the constant elevation of the heart above the pelvis. Dislodgment of clots, with formation of emboli, is effected when there is a sudden rise of venous pressure. As the wave of pressure and venous distention sweeps outward along the venous system, loosely adherent clots, formed in collapsed or partly dilated veins, are stripped away from the wall. If

episodes of venous dilatation are frequent, propagation of clots is almost impossible, as the thrombi are dislodged from the minute vessels in which clot formation begins. Such small thrombi are well tolerated by the lungs, and most of them probably dissolve before organization begins. Patients who get up several times a day and those with severe cough, with acidosis, uremia, anemia or impaired blood coagulation therefore are much less subject to serious vascular accidents during bed rest, either because clots form and grow less readily or because they are dislodged before becoming of significant size. The greatest hazard is in those who are propped up slightly for eight to fourteen hours a day, as this favors clotting in partially distended veins.

It is now believed that phlebothrombosis rarely begins in the large veins but in the venules of the muscles and subcutis or in the pelvic venous plexuses where complete stasis is possible.⁴ Thrombosis in the feet, calves and thighs begins in the dependent parts, where prolonged pressure and ischemia cause tissue damage.⁵ Such lesions may be thought of as the internal equivalent of bed sores, but unfortunately they are far more frequent. Among middle aged and elderly patients, dying after days or weeks of bed rest, thrombosis in veins of the dorsal part of the legs and feet were demonstrable in one fourth to one half of the cases in large series studied in Germany, in Sweden and in Oregon.⁶ Fatal pulmonary emboli were present in about 4 per cent of the cases with thrombi in the legs, and nonfatal emboli in about 20 per cent more.⁷

Consideration of the effect of bed rest on the systemic veins ends with the embolization of the pulmonary arterial system, but discussion of the results of embolization calls for a review of the effect of the supine posture on the lungs. The occurrence of acute massive collapse, in postoperative cases especially, is well recognized and much is known of the mechanism and prevention of this type of disorder.⁸ The pathologist has known for years that patients dying after only a day or two in bed may have airless patches scattered through the dorsal and caudal parts of the lungs. In the lungs, as in the skin, postmortem lividity due to settling of blood makes the dorsal parts of the lungs very bloody, so the pathologist can tell little or nothing of the passive hyperemia present in these regions during life. But physical signs and roentgen studies do indicate the occurrence of hyperemia and edema in the dependent parts of the lungs, especially on the right side, in many patients who spend most of their time in the dorsal and right lateral decubital positions. Such hyperemia and edema probably predisposes to collapse of the local regions. While it is not likely that collapse occurs post mortem, it must develop rather rapidly during the agonal state as respiration fails and accumulation of fluid in large bronchi interferes with aeration. Patients with air hunger and deep respiration up to the final hour show notably less collapse post mortem than do those with normal blood levels of hemoglobin and base, and radiologists are familiar with the clear peripheral lung fields and hilar hyperemia in cases of

4. Neumann, R.: Ursprungszentren und Entwicklungsformen der Bein-Thrombosen, *Virchows Arch. f. path. Anat.* **301**: 708, 1938. Frykholm.³ Rösle.⁶ Hunter, Sneed, Robertson and Snyder.⁷

5. Voegt, H.: Veränderungen der Wadenmuskulatur bei Venenthrombose und langem Krankenlager, *Virchows Arch. f. path. Anat.* **300**: 190, 1937.

6. Rösle, R.: Ueber die Bedeutung und die Entstehung der Wadenvenenthrombosen, *Virchows Arch. f. path. Anat.* **300**: 180, 1937. Frykholm.³ Hunter, Sneed, Robertson and Snyder.⁷

7. Hunter, W. C.; Sneed, V. D.; Robertson, T. D., and Snyder, G. A. C.: Thrombosis of the Deep Veins of the Leg, *Arch. Int. Med.* **68**: 1 (July) 1941.

8. Coryllos, P. N., and Birnbaum, G. L.: Circulation in Compressed, Atelectatic and Pneumonic Lung, *Arch. Surg.* **10**: 1346 (Dec., pt. 2) 1927.

3. Frykholm, R.: Pathogenesis and Mechanical Prophylaxis of Venous Thrombosis, *Surg., Gynec. & Obst.* **71**: 307 (Sept.) 1940.

combined heart failure and uremia.⁹ This so-called "pulmonary azotemia" actually should be called "pulmonary hyperemia with acidosis," for it is the acidosis and air hunger which prevent the collapse of many alveoli so common in bedfast patients with dorsal passive hyperemia or with the pulmonary hyperemia of heart failure. It is in these collapsed parts that terminal, or hypostatic, pneumonia develops, and here is where necrosis begins whenever pulmonary infarction follows pulmonary embolism. In the aerated lung, pulmonary embolism raises the oxygen tension by diminishing the inflow of reduced blood from the right ventricle, and even if the bronchus is closed as well as the artery the tidal movement of oxygenated blood in the pulmonary vein maintains the viability of the tissue as long as the pulmonary veins dilate and collapse during the cardiac cycle. In dependent parts of the lungs the veins are fully distended throughout the cardiac cycle and tidal flow ceases.

It was formerly taught that infarcts occur only in patients with passive hyperemia of the lungs, but now it is known that they follow pulmonary embolism in 60 per cent of surgical and medical cases without heart failure and in 90 per cent of the cardiac.¹⁰ Here again the combination of dorsal decubitus with sedatives which depress respiration serves to pave the way for trouble, and young men previously in excellent health may have pulmonary infarction within a week of an otherwise uncomplicated laparotomy or herniorrhaphy if they have been kept "comfortable and quiet" by skillful nursing and constant medication. In not a few cases the infarct develops, not at the time of embolization, but some days later when collapse happens to occur.¹¹

A discussion of the hazards of bed rest would be incomplete without emphasizing the tremendous strain put on the heart and circulation by a maneuver which patients in bed frequently perform and against which many are never warned. Whenever one takes a deep breath, closes the glottis and tightens the thoracic and abdominal muscles (Valsalva's experiment, "bearing down") there follow a series of extreme fluctuations in thoracic pressure, cardiac output, blood pressure and vagal and vasomotor tone. After myocardial infarction sudden death is far more likely to occur when the patient performs this effort than from any other cause, and it is a common incitant of pulmonary embolism. This may occur on the bed pan or even when passing flatus or trying to push oneself higher on the pillows. Patients with difficulty in urination or defecation probably undergo less risk if warned against this procedure and allowed to get out of bed to use a commode than when left to struggle in a supine position. To put a man at complete rest for heart disease without making sure that the Valsalva experiment is never carried out, at any time, is about as illogical as forbidding a patient to do desk work but letting him run upstairs. Every physician should be acutely aware of the fact that simply ordering "complete bed rest" does not protect the patient from severe periodic stress on the heart and circulation, while it does expose him to definite danger.

At another occasion it might be profitable to review the therapeutic measures necessary to minimize the

hazards of complete bed rest. Obviously these will include omission or rigid restriction of narcotics and sedatives, encouragement of deep breathing exercises, frequent changes of posture and acceleration of venous flow in the legs by elevating the foot of the bed and not the patient's thorax, or by exercise or reactive hyperemia from brief arterial compression. There is no doubt that precautions based on an understanding of phlebothrombosis,¹² pulmonary embolism and infarction¹³ will greatly reduce the evil sequelae of complete bed rest in those cases in which it seems necessary in spite of its hazards. But this still leaves the inevitable residue of tragic cases in which bed rest is the chief agent of disaster. The physician must always consider complete bed rest as a highly unphysiologic and definitely hazardous form of therapy, to be ordered only for specific indications and discontinued as early as possible.

THE ABUSE OF REST IN BED IN ORTHOPEDIC SURGERY

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Among orthopedic surgeons the importance of rest as a therapeutic measure has been emphasized since the beginning of this specialty. It is generally recognized that Hugh Owen Thomas was one of the forerunners of orthopedic surgery. In his book "Menders of the Maimed" Sir Arthur Keith said "It was the custom of John Hunter to prescribe 'Rest' as a routine measure in the treatment of disablements of the motor system of the human body. After him came John Hilton, who regarded rest as the most powerful aid which the surgeon could bring to the aid of disordered tissues. Hilton elaborated the means of securing rest into a system; but the man whose principles and practice we are to describe here made rest his creed and ritual. Hugh Owen Thomas believed that an overdose of rest was impossible. To use the expression which he never tired of repeating—Rest must be 'enforced, uninterrupted and prolonged.'"

Thus one may see that the creed prescribed for orthopedic surgeons of a generation or more ago called for rest in considerable quantities. This may have been and probably was carried to an extreme beyond reason. However, one must consider that many of the patients for whom this treatment was employed had tuberculous infection of bone, and while other means of eradicating tuberculosis have brought about a striking decrease in the incidence of the disease, particularly in the number of cases of tuberculosis of bones and joints,

12. Ochsner, A., and DeBakey, M.: Thrombophlebitis, J. A. M. A. 114: 117 (Jan. 13) 1940.

13. Pilcher, Robin: Role of Obstruction in Pulmonary Embolism, Lancet 1: 1257 (June 3) 1939. Belt, T. H.: Autopsy Incidence of Pulmonary Embolism, ibid. 1: 1259 (June 3) 1939. de Takats, G., and Jessor, J. H.: Pulmonary Embolism, J. A. M. A. 114: 1415 (April 13) 1940. de Takats, G.; Fenn, G. K., and Jenkinson, E. L.: Reflex Pulmonary Atelectasis, ibid. 120: 686 (Oct. 31) 1941. Barker, N. W.; Nygaard, K. K.; Walters, W., and Priestley, J. T.: Statistical Study of Pulmonary Embolism: Postoperative Venous Thrombosis and Incidence in Various Types of Operations, Proc. Staff Meet., Mayo Clin. 15: 769 (Dec. 4) 1940; Predisposing Factors, ibid. 16: 1 (Jan. 2) 1941; Location of Thrombosis: Relation of Thrombosis and Embolism, ibid. 16: 33 (Jan. 15) 1941; Time of Occurrence in Postoperative Period, ibid. 16: 17 (Jan. 8) 1941. Westdahl, P. R.: Pulmonary Embolism, West. J. Surg. 49: 77 (Feb.) 1941. Maitland, H. S.: Spontaneous Thrombosis of Veins of Lower Extremity and Pelvis and Fatal Pulmonary Embolism Following Trauma and Surgical Operations, S. Clin. North America 21: 383 (April) 1941. Burrell, R. O.: Prevention of Pulmonary Embolism, Manitoba M. Rev. 22: 161 (Aug.) 1942. Schmidt, H. W.; Mousel, L. H., and Harrington, S. W.: Postoperative Atelectasis: Clinical Aspects and Review of Cases, J. A. M. A. 120: 895 (Nov. 21) 1942.

From the Section on Orthopedic Surgery, Mayo Clinic.

Read in a symposium on "The Abuse of Rest in the Treatment of Disease" before the Section on Experimental Medicine and Therapeutics at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

9. Lelong, M., and Bernard, J.: Sur certains aspects radiographiques de l'œdème pulmonaire chez les cardio-rénaux, Bull. et mém. Soc. méd. d. hôp. de Paris 53: 177 (Feb. 15) 1937. Nassa, C. B., and Rigler, L. G.: The Roentgenological Manifestations of Pulmonary Edema, Radiology 37: 35 (July) 1941.

10. White, P. D.: Pulmonary Embolism and Heart Disease, Am. J. M. Sc. 200: 577 (Nov.) 1940.

11. Castleman, B.: Pulmonary Infarction and Atelectasis: Report of Case Presenting Evidence of Causal Relationship, Arch. Path. 35: 299 (Feb.) 1943.

rest still remains the best known means of combating that disease in the human body. For many years the only form of treatment consisted of years of rest in bed in the patient's home or in a hospital. Splinting of joints, supporting dietary regimens, heliotherapy and other things were supposed to add to the efficacy of the treatment, but the main feature was rest.

For the past thirty years the fact that more perfect rest to diseased joints could be brought about by internal fixation of the spinal column and major joints by means of operative fixation with bone grafts or by a fusion operation has come to be recognized. Now tuberculous joints, when recognized, usually are treated in this manner and a decrease in the period of rest in bed and hospitalization, and for the most part improvement in the results has been effected. Severe kyphosis is rarely seen, and the extreme destruction of joints with pathologic dislocation is not often seen. In addition, the bad effects of long rest in bed have been reduced.

Elsewhere in this symposium the deleterious effects of long rest in bed will be considered. From the standpoint of the orthopedic surgeon, one effect deserves emphasis perhaps beyond that which it will be given by other speakers. This effect is atrophy. Atrophy of muscles, articular structures, bone and skin results from prolonged rest and must be regarded as a pathologic condition. The actual pathologic physiology of this condition is not well understood. Certainly there are other factors than simple disuse that contribute much to certain types of atrophy, but the effect of disuse alone is sufficient to lead to a good deal of disability. If one opens a thigh to remove fascia for surgical procedures one will be struck by the smooth surfaces of contact between the fascia and underlying muscle. These surfaces fairly glisten and are not adherent; obviously, smooth, gliding movements between the muscle and fascia are not impeded. On the other hand, when one opens a thigh that has been at rest either in a cast or in a splint or as a result of rest in bed one often finds that the fascial surface as well as the surface of the underlying muscle is dull and does not glide; oftentimes many small adhesions have formed between the muscle and the fascia. This seems mainly the result of disuse and inactivity or, in other words, an alteration from the normal physiology of the involved region. I often have thought that, if such changes take place between all muscles and their fascial coverings or gliding envelopes, they must have a considerable effect in producing limitation of function in the skeletal system. To a lesser extent and to a less pronounced degree the same effects, as a rule, may be seen in joints which are not used and in cases in which rest in bed is employed; however, bony atrophy may become symptomatic and even progress to the point where pathologic fractures may take place. A similar condition may take place in the skin, and the dangers of decubitus ulcers in bedridden patients are well known. Much of this atrophy can be avoided by systematic massage and exercises in cases in which, for some reason or another, it is necessary to remain in bed for a long time. Too often, however, such measures are overlooked, forgotten or neglected to the certain detriment of the patient.

One of the most common and most severe effects of rest in bed is embolism; however, this does not occur frequently in orthopedic cases. Most orthopedic patients are turned frequently enough when in bed to prevent this catastrophe, and the surgeon who neglects to see that his patients are turned over at least two or three times daily may find this complication arising more often than it should.

The main group of cases in which orthopedic surgeons have to employ rest in bed as a part of the treatment are cases of disease or injury of the spinal column, pelvis, hip or femur. There is scarcely any form of disease or injury of these parts in which efforts to reduce the period of rest in bed have not produced good results. The period of rest in bed in such cases, therefore, has been greatly reduced.

FRACTURES OF THE FEMUR

Fractures of the Neck of the Femur.—One of the outstanding examples of such reduction is in the treatment of fractures of the neck of the femur as well as intertrochanteric fractures of the femur. The method of treatment which formerly was used universally included putting the patients in bed and employing Buck's extension or applying a weight to the injured leg. Whitman's¹ method of reduction and application of a cast reduced the period of enforced rest in bed to some extent and did much to improve the results of treatment of fractures of the neck of the femur.

In 1931 Smith-Petersen² introduced the method of fixation of fractures of the neck of the femur by means of a three flanged nail. This method soon came into widespread use, and although many types of instruments for internal fixation have been devised and many methods of introducing the fixatives have been developed, the principle of internal fixation of such fractures has undoubtedly come to stay and with it a definite shortening of the period of rest in bed. Not all surgeons are in agreement as to the length of time necessary for convalescence in cases of this type of fracture. Soon after the method was introduced, many surgeons advocated that the patients be gotten up immediately after the operation and that ambulatory treatment be commenced. It is my impression from my own experience and from the observation of other surgeons that most surgeons prefer to keep the patient in bed for three to five weeks after such fixation. This is, of course, a great reduction in the period of rest in bed formerly employed, and it has produced great improvement in the results obtained, from the standpoint both of the percentage of united fractures and of the great decrease in the number of complications arising during convalescence.

The quality of results obtained in the treatment of fractures of the intracapsular type has led to a widespread effort on the part of surgeons to improve the results and reduce the complications in cases of intertrochanteric fractures of the femur. Although this type of fracture seldom leads to nonunion and, for this reason, does not cause permanent crippling in as many cases as does intracapsular fracture, the incidence of complications, often fatal and largely due to the prolonged rest in bed incidental to the convalescence, is equally high. Although it cannot be said that the various methods of internal fixation of this type of fracture have as yet been as widely accepted or as well perfected as have those employed in cases of intracapsular fracture, it is my opinion that the general principle of early internal fixation of intertrochanteric fractures must be accepted and is here to stay. With it will come a shortening of the period of rest in bed and a consequent improvement in the general well-being of the patient.

1. Whitman, Royal. A New Method of Treatment for Fracture of the Neck of the Femur, Together with Remarks on Coxa Vara, *Ann. Surg.* 36: 746-761, 1902; The Abduction Treatment of Fracture of the Neck of the Femur: A Comparative Analysis from the Standpoint of Technical Efficiency, *Surg., Gynec. & Obst.* 27: 578-585 (Dec.) 1918.
2. Smith-Petersen, M. N.; Cane, E. F., and Vangorder, G. W. Intracapsular Fractures of the Neck of the Femur: Treatment by Internal Fixation, *Arch. Surg.* 23: 715-759 (Nov.) 1931.

Other Fractures of the Femur.—Other fractures of the femur often demand a period of rest in bed. Depending on the type of fracture and the type of treatment used, this period may last for several days to many months. Although traction methods are of value in many cases, it must be recognized that they necessarily prolong the period of rest in bed. In choosing a method of treatment, this factor must be taken into account. Indeed, in many instances open reduction for internal fixation and the subsequent application of a spica cast in order that the patient may be turned and even gotten up so as to avoid the deleterious effects of continued rest in bed in a supine position, such as is necessary when most traction methods are employed, will tend to cause less strain on the general condition of the patient.

In late years, many efforts have been made by various methods of pin fixation to get patients with a fractured femur ambulatory at an earlier date. Such methods as those of Roger Anderson,³ Stader and Haynes all point toward this.⁴

Although I do not want it to be construed that I advocate these methods of treatment of fracture of the femur, I do wish to emphasize that many surgeons are attempting, by using these methods, to have their patients walk early. All realize the dangers of long periods of rest in bed, and the effort of all forward looking surgeons is to shorten this period. Any method that has as its main advantage earlier ambulatory treatment will have a ready and wider hearing, and one must expect constant improvement of methods to this end.

LESIONS OF THE SPINAL COLUMN

An equally important group of lesions to be considered from this standpoint are fractures of the spinal column. Although patients with fractures of vertebrae accompanied by paraplegia are, of necessity, required to remain bedfast for a long time, it must be recognized that in this group of cases complications arise frequently, are difficult to control and often are fatal. Many of these complications are directly due to enforced rest in bed. Some effective means of treating this group of patients so that they may be allowed out of bed earlier would be most welcome. For the treatment of simple compression fractures and fractures without paraplegia there are available methods of reduction and control which will greatly shorten the period of rest in bed, which is desirable. Rest in bed for four to six weeks is adequate in practically all cases, provided adequate fixation of the spinal column with plaster is employed after reduction by means of a hyperextension frame or by hyperextension manipulation under anesthesia. For elderly persons with a compression fracture of moderate severity it has been our custom at the Mayo Clinic for several years to fit them with an adequate spinal support and get them up within a few days in order to avoid the almost inevitable complications that arise because of prolonged and continuous rest in bed.

The period of convalescence has been shortened after operations for fusion of the spinal column, particularly after fusion of the lumbosacral vertebrae for such conditions as spondylolisthesis, traumatic lumbosacral arthritis, spondylolysis and after fusion that is done at the same time as an operation for protrusion of an

intervertebral disk. Formerly it was not uncommon for patients to be kept in bed, and sometimes in casts, for twelve weeks after such an operation. Now, many of our patients are allowed to be up and about for a short period daily at the end of three weeks after operation. We often permit these patients to turn themselves from side to side and even to turn on the face three days after the operation. No ill results have been noticed from this change of procedure. Indeed, it seems that the patients have an easier convalescence and are able to resume activity with greater ease and comfort than they did formerly, when the period of rest in bed was two to four times as long as it is at present and when the rules as to the patients' turning themselves in bed were more strict.

ARTHRITIS

It is, of course, necessary to use rest in bed in the treatment of arthritis; but I have often thought that the day an arthritic patient gives up and goes to bed is the day he becomes a total cripple. I have been astonished at times to see patients obviously suffering from severe and disabling arthritis who, by sheer force of circumstances, have been prevented from giving up and going to bed. Such patients usually come through their ordeal with much better joints than do those who have been put to bed, even though the rest in bed may be accompanied by the best available treatment.

COMMENT

I have tried to point out that orthopedic surgeons, realizing the detrimental effects of complete rest in bed, have over the years succeeded in shortening the periods of such confinement in their prescribed treatment for various conditions. Efforts to improve treatment toward this goal continue, and one will see more advances along this line in the future.

THE ABUSE OF REST IN PSYCHIATRY

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A little over a hundred years ago a man was born in Philadelphia who became preeminent in three fields. In 1881 he was described by Sir James Paget as "one of the most distinguished medical men in your country or in any country." In addition to conducting one of the largest private practices in America, he was the author of a book of poetry, one of children's stories, numerous novels, a treatise on neurologic injuries and 250 articles on pharmacology, physiology, toxicology and psychotherapy. He received honorary degrees from Bologna, Edinburgh, Toronto, Harvard, Princeton and Jefferson. It is significant that a man of such prodigious labors and accomplishments should have made famous a program of treatment by rest!

Weir Mitchell described his "rest cure" in a number of books, the titles of which indicate his philosophy: *Wear and Tear*, *Hints for the Overworked*, *Fat and Blood*. His idea was that nervous illnesses were the result of physical exhaustion, which he combated by complete bed rest, complete isolation, no visitors, no letters, no reading, no writing; the constant attendance of a nurse, some massage and electricity and, withal, high caloric feeding.

3. Anderson, Roger: Ambulatory Method of Treating Femoral Shaft Fractures, Utilizing Fracture Table for Reduction, *Am. J. Surg.* 39: 538-551 (March) 1938.

4. Shaar, C. M., and Kreuz, F. P., Jr.: Treatment of Fractures and Bone and Joint Surgery with the Stader Reduction and Fixation Splint, *S. Clin. North America* 22: 1537-1583 (Dec.) 1942.

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Mitchell's prestige, influence and persuasiveness were such that his "rest cure" for the treatment of neuroses influenced American medicine for nearly fifty years. The fact that persons with nonorganic illnesses who complained of "nervousness" seem to be wasting energy by unnecessary tensions, anxieties and fruitless exertions and that they suffer, subjectively at least, from a high degree of fatigability could not but impress physicians who, because they had been reared and trained in a mechanistic physiologic philosophy of human life, saw these cases without benefit of psychologic insight. The fatigue theory of the neuroses which so impressed Weir Mitchell thus continued to impress nonpsychologically minded physicians, who welcomed a plausible physiologic expansion of these baffling cases. Diagnoses of nervous exhaustion, nervous fatigue, fatigue neuroses, nervous breakdown from overwork, nervous weakness, neurasthenia and so on continued to fill the records of hospitals, clinics and private practitioners. Treatment based on these diagnoses and Weir Mitchell's example were developed, exploited and popularized—modified rest cures, relaxation treatment, vacation treatment and what I have called "trip treatment"—the sending of patients away on visits to California, Florida and Europe, or on fishing trips, hunting expeditions and the like.

Modern psychiatry regards this conception of neurosis and these forms of treatment for neuroses as entirely false in theory and unsound in practice. To relate ourselves again to the title of this symposium I will put it this way: the abuse of rest as a treatment in psychiatric conditions represents a neglect or misunderstanding of the real pathologic condition of the neurotic patient under the guise of a treatment which is not only futile and expensive but very often definitely harmful.

In the brief limits of time available it would be difficult to answer all the questions to which this statement will give rise. In a very condensed form I shall try to outline the modern theory of the neuroses and of the treatments considered appropriate for them in contrast to those which justify the practice of prescribing excessive rest and indicate, in closing, some of the ways in which rest can be used without abuse.

There is no question but that nervous patients show evidences of fatigue and easy fatigability; this fatigue is a symptom of the neurosis. Overstudy, overapplication, overexertion and all other excess expenditures of energy do not cause psychiatric syndromes; they are often the expression of psychiatric illness. The cure of the psychiatric illness—the neurosis, the nervousness—is the removal of that which impels the individual to make such depletions of his own strength, to waste so much of his energy or to require so much of it to hold himself in check against explosions or collapse. The modern conception of a psychiatric illness is a dynamic one based on a concept of cooperative and interactive anatomy, physiology and psychology. The neuroses and psychoses and other evidence of maladjustment on the part of a patient are a result of misdirected energy rather than the lack of sufficient energy. An automobile the engine of which has become overheated as the result of being driven with the brakes set cannot be cured by resting. As soon as the car's proper function, that of traveling along the road, is resumed (with the brake still set) the same overheating will result. The

question is Why are the brakes set and how does one release them?

The problem of treatment of a psychiatric illness thus goes beyond merely arresting any attempt at adjustment by physical exertion. It aims at the redirection of the wasted energy, the removal of interfering inhibitions and the setting up of requisite inhibitions. Human beings are impelled by instinctual forces to attempt certain modifying relationships with respect to their environment. From earliest infancy they want "to do something." As they grow older and the aimlessness of infantile manipulation of the environment becomes an organized pattern, this something which they do to the environment turns out to be a modification of it in either a constructive or a destructive direction. We perform creative activity and destructive activity—nothing else. Both forms of activity seem to be related to certain instinctual drives, and a certain kind and amount of destructiveness and a certain amount of creativeness appear in the activities of every human being. As long as an adequate amount of both is possible for an individual, he does not develop a neurosis or a psychosis.

For various reasons—a brain tumor, a hemiplegia, an infection with tuberculosis, a reaction of grief to the death of a daughter, a reaction of fear to the treatment of an employer, a reaction of hate to the infidelity of a husband, an ineradicable memory of overwhelming defeat and inadequacy experienced in childhood—for these and many other reasons, the ability to direct energy in a proper pattern of destructiveness and creativeness fails to develop or to be maintained. The resulting incoordinate, awkward attempts to maintain an adjustment is expensive of energy. The patient carries on with his assigned tasks only under the greatest difficulty, with increasing inefficiency, pain and internal and external dissatisfaction. Perhaps he continues to operate at 40 per cent efficiency plus much complaining, worrying, lamenting and despairing, plus many "patent medicines," osteopathic treatments, periods of absenteeism, week end drunks, acerbities with wife and children, quarrels with fellow employees, foremen and assistants. If his efficiency declines even further, let us say to 20 per cent, he may come to a psychiatrist. The brakes are well set, the heat is enormous, the productivity is minimum, the distress is great.

The absurdity and futility of prescribing rest for such a patient must be apparent. The problem is rather to discover what prodigious internal consumption and blockade of energy has occurred and how it can be directed again to fruitful employment. The technic in doing this is beyond the scope of the paper; it would entail a review of the entire program of psychiatric examination and treatment.

Pari passu with the development of the rest cure there developed in the field of medicine a program of work cure. This concept held that such individuals needed only to be driven to more strenuous efforts, a procedure comparable to driving an overheated brake-set automobile harder and faster. Obviously, this is an even more absurd philosophy than that of the rest cure. It appealed particularly to hardboiled industrialists and misguided Army officers whose conception of neurotic illness is that its victims are lazy liars or yellow dogs, feigning disability to avoid duty.

At first glance, the behavior of the neurotic or psychotic patient would seem to lend support to these emotionally colored judgments of the exasperated practical man of affairs. The modern psychiatric hospital provides abundant opportunities for enlisting the interests of patients¹ and yet despite the efforts of the medical director, the medical staff, the nursing staff and the therapists—despite schedules and regulations and exhortations—many patients manage to evade with an uncanny skill every available opportunity for exercise, constructive craft work, amusement, diversion, recreation and all the other outlets so carefully planned and devised for them. The temptation is to react to this emotionally, forgetting that this is the primary problem of psychiatry. What malignant energy lock has occurred within them that prevents it? What we find almost regularly in psychiatric patients is that they cannot work, they cannot play and they cannot rest. They have to be taught to do all three of these things. Fortunately, in most cases it proves possible to grade the assignments so that patients may be taught to play and taught to work and thus taught to divert available energy toward the construction of patterns of creativeness and destructiveness which can be reemployed usefully in the outside world when the patient has made sufficient progress. Meanwhile of course other types of procedure must be instigated which make more energy available for the development of such patterns.

To teach such individuals how to work and how to play is to teach them how really to rest. This is the function of occupational therapy, recreational therapy, educational therapy and psychotherapy as they are employed in the modern psychiatric hospital.² They seek to make it possible for the patient to find an outlet for his instinctual urges in work and play properly guided, properly taught, properly selected for his special needs, interests and capacities, and properly graded and expanded. All this is in a contrary direction to that of the old plan of enforced rest whereby the patient through moral, physical or chemical restraint was obliged to surrender to idleness and passivity. Both types of treatment were not only ineffective; they were actually deleterious. The reason for this is not far to seek. Patients deprived of physiologic, mechanical and psychologic devices for turning their aggressive energy into batting a ball, digging a trench or making a puppet turn these destructive tendencies in on themselves.³ The man who commits suicide, who kills himself, is often thought of as the paradigm of psychiatric morbidity. He turns all of his aggressive energy on himself and commits a murder with himself as the object. It is quite obvious, of course, that many self-destructive persons do not go as far as murdering the object; they only berate it, abuse it, debauch it, humiliate it, hamstring it, intoxicate it. By it, of course I mean the self; this is the way many people treat themselves. In psychiatry we describe this abuse and mistreatment of the self as the turning inward of aggressive tendencies. The object of psychiatric treatment for such individuals is to turn these aggressive impulses outward, away from the self. Failure to do so results in a virtual suicide, not by placing a gun to the temple or even by

pouring gallons of whisky into the central nervous system, but by the accumulation of hostile feelings associated with self-destructive energy that accomplish the same morbid result. We know that physical exertion, the directed use of the muscles, tends to combat this, and that enforced rest tends to favor it.

Having thus demonstrated as well as I can in the short time allotted to me that rest can be a very dangerous remedy and do a great deal of harm, I should like to end my contribution to this symposium by taking the paradoxical position that rest may also do a very definite amount of good. If one remembers that the psychiatrically disturbed patient who cannot work or play efficiently usually cannot rest adequately, one realizes that definite steps have to be taken to improve this capacity also. It was in that direction that hydrotherapy, prolonged immersion tub baths, wet sheet packs and the like were originally developed, and these are still much employed. Chemical sedatives have improved vastly since the day in which chief reliance had to be put on bromides and opiates. It is possible now to produce sleep in patients whose disturbed emotional conflicts and prevailing fears prevent them from daring to sink into repose without the use of drugs having no deterrent side effects. Some sedatives have the peculiar ability, when administered rapidly, so to modify consciousness and the psychologic architecture as to permit the emergence of what might be described as the indigestible toxic material of the mind. This has been a feature of recent reports from the war theater made by Grinker and Spiegel,⁴ Murray⁵ and others. In some instances exposure to prodigious stress, both physical and mental, has so depleted the energy reserves of combat troops, airplane pilots and shipwrecked merchant seamen that psychiatric syndromes characterized by anxiety, fears, aggressiveness, erratic behavior and other symptoms have emerged. In these conditions prompt and complete rest has proved of enormous benefit, as indicated by the reports of Commander Daniel Blain⁶ of the War Shipping Administration, Public Health Service Clinics, and his associates.⁷ A few nights of sound, protected sleep under quiet, pleasant surroundings with good food and manifested friendliness are often sufficient to restore these individuals to active duty within one to three weeks. Even in these cases, important as is the element of rest, the importance of the psychologic factors of safety, sympathy and admiration are probably equally great. Companionship and planned activities are prescribed as soon as the men are up. It should certainly be borne in mind that these cases represent a war syndrome and are not comparable to any peacetime pictures. There is a vast difference between the man who has worked at full capacity for thirty-six hours without stopping and is then thrown into cold oily waters by a submarine attack and fights for his life in and out of a lifeboat for the next twenty-four hours—there is a vast difference between his need for rest and the need for rest of the average maladjusted, neurotic or

1. Menninger, W. C.: Psychoanalytic Interpretations of Patients' Reactions in Occupational Therapy, Recreational Therapy and Physiotherapy, *Bull. Menninger Clin.* 1: 148-157 (May) 1937.

2. Menninger, K.: Psychoanalytic Psychiatry: Theory and Practice, *Bull. Menninger Clin.* 4: 105-123 (July) 1940.

3. Menninger, K.: *Man Against Himself*, New York, Harcourt, Brace & Co., Inc., 1938.

4. Grinker, R. R., and Spiegel, J. P.: War Neuroses in North Africa, prepared and distributed for the Air Surgeon, Army Air Forces, New York, Josiah Macy Jr. Foundation, 1943.

5. Murray, J. M.: Psychiatry in the Army Air Forces, *Am. J. Psychiat.* 100: 21-24 (July) 1943.

6. Blain, Daniel: Personal and Morale Factors in Etiology and Prevention of Traumatic War Neurosis in Merchant Seamen, *Am. J. Psychiat.* 100: 131-135 (July) 1943.

7. Kubie, L. S.: Manual of Emergency Treatment for Acute War Neuroses, *War Med.* 4: 582-598 (Dec.) 1943. Potter, H. W.: Physical and Psychologic Aspects of Environment Essential to Treatment of Traumatic Neuroses (Convalescent or Rest Homes), *Am. J. Psychiat.* 100: 120-123 (July) 1943.

psychotic civilian, whose illness is none the less severe but whose physical energy and physiologic defenses have had no such sudden strain put on them.

CONCLUSION

The concept of rest as a form of treatment in psychiatry arose in an era characterized by the total neglect of the consideration of psychologic factors in the study of human beings. As the mechanistic conception of personality has given way to the dynamic organismic conception, the fallacy of curing psychologic symptoms by merely decreasing muscular activity has become apparent. In the sense of physical inactivity, rest has ceased to be of any importance in psychiatric phenomena. Indeed, the tendency is in precisely the other direction; namely, to utilize rather than to blockade further the available energy of the neurotic or psychotic patient. Such a point of view extends beyond a treatment of conditions formerly described as neuroses and psychoses, however; in arterial hypertension, for example, where there is a vascular response to the anxiety associated with emotional conflict, the former prescription of exercise and work seems to have been a step in precisely the wrong direction. I am confident that the death of some hypertensive patients has been hastened by physicians who removed from them the only available or acceptable form of aggression to which they had had access. When I suggested this a few years ago,⁸ I received numerous letters from internists confirming this opinion on the basis of their own clinical experience. How widely this may apply to other forms of what we formerly called physical illness and which we now, with equal verbal error, sometimes call psychosomatic conditions has been indicated in part by the presentations in this symposium.

The net philosophical import is that successful medicine must envisage the personality as a physiochemo-psychologic unit susceptible of being interpreted and treated from the physical standpoint, the chemical standpoint and the psychologic standpoint, assuming a working knowledge of the instinctual motivations that impel the adjustment patterns of human life.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HARRISON, EASTMAN, POWERS, DOCK, GHORMLEY AND MENNINGER

DR. J. ROSS VEAL, Washington, D. C.: Thrombosis of the deep veins of the leg and foot is a common complication in patients who are forced to bed. The more sick the patient, the older the patient, the more sedation we use and the more absolute the rest, the more likely is thrombosis. If we look for this condition, we shall be able to find it. Once we find it, we can do something about it and prevent fatal pulmonary embolism. The veins involved are usually the deep tibial, the superficial veins of the leg and deep veins of the feet. If every doctor who has patients confined to bed would examine the legs and feet daily and look for certain signs, he would be able to detect the thrombosis early. One should ask the patient about any abnormal sensations of the legs as numbness, pain or a sense of coldness. He should look at the legs and feet for changes in color, dilated veins or hemorrhage in the skin or edema. He should palpate the extremity for tenderness of the toes, the feet and the legs. He should also examine the pulses of both legs and feet to determine any diminution of volume. He should detect any sweating of one leg not present in another. If he finds any of these abnormal signs he should accept the possible diagnosis of thrombosis of the deep veins. There is

one aid which may help considerably in confirming the diagnosis, and that is an x-ray examination of the deep veins. In many instances one will be able to demonstrate the thrombosis before other positive signs are present. After diagnosis of thrombosis of the deep veins of the leg, the appropriate vein above the level of the clot should be ligated. The major veins of the lower extremity, the femorals, the iliacs and the vena cava can be ligated even if the patient is extremely ill without causing death. The end results are a shorter convalescence, a better leg and often the saving of the patient's life.

DR. FRANK H. KRUSEN, Rochester, Minn.: I recalled the statement by Dr. George Minot "Rest means many things to many persons." He told of a policeman who was advised to rest and promptly took an automobile drive from Boston to California and back in twelve days. To him rest meant change of activity. Another patient was told to rest in bed. She did go to bed at certain hours each day, but she answered the telephone, jotted down notes, took care of all the family affairs, worked out the problems for the day. Rest to her meant lying in bed. When Dr. Ghormley mentioned Hugh Owen Thomas and when Dr. Menninger mentioned Weir Mitchell I thought of Allen K. Krause's book "Rest and Other Things" and his advice to the physician who cared for the tuberculous patient "Rest must be first, and always first, in the treatment of the tuberculous." I tried to think of some one as influential as Weir Mitchell, Hugh Owen Thomas or Allen Krause who would lead us in the opposite direction, and I couldn't think of any one. I thought perhaps we had been following these physicians a little too blindly. Such blind following of the great physicians of the past has always been one of the weaknesses of the medical profession. Confusion with regard to abuse of rest in the arthritic is due to failure to recognize the difference between complete immobilization of the individual and the avoidance of fatigue. They are entirely different. The patient can avoid fatigue and yet maintain all of the joints in complete mobility. Dr. Philip Hench said "The rest school men have discussed rest so much that I think we are even in danger of over-resting our patient. And the dangers of over-rest in arthritis are as great as if not greater than the dangers of overexercise, because when the patient overexercises he promptly knows he has done wrong because of the increased pain, but when he over-rests the results of over-rest work on him silently and maliciously until one suddenly notes serious if not irreparable contractures."

DR. H. CLOSE HESSELTINE, Chicago: Many patients do not rest even though they are confined to bed. Like all therapies, rest if it is to be used properly must be neither too much nor too little but adequate. The woman in industry has, as a rule, a double problem. One is the care of her home; if she is a mother, the care of her family as well. On the other hand, she must be a sufficiently satisfactory employee to keep her job. Good mothers at times do as much work at home as they do on a regular shift at the plant. This necessitates long hours. Failing to give or provide care for the family may encourage or precipitate a social problem in the community. It is evident to the Committee on the Health of Women in Industry of the Section on Obstetrics and Gynecology of the American Medical Association that we must institute an additional program for both the industrial physician and the obstetrician and gynecologist to bring about a proper cooperation of these two groups. This additional advance will benefit the employee and the employer. There are no reliable, conclusive data to help us on the problems of women in industry. Efforts are now under way, through governmental and other agencies, to collect facts about women employees. From such sources we hope to have better foundation for our recommendations. Dr. Eastman has given you his data specifically on child spacing. One might ask whether the longer spacing interval was volitional or accidental, or whether ill health or other conditions contributed to the longer interval. If ill health was partly responsible for the longer interval, then the explanation for the unfavorable outlook for the longer lapse between pregnancies is explained. Outside of the queen bees and perhaps a few other species, those who reproduce are not given a place

8. Menninger, K.: Emotional Factors in Hypertension. *Bull. Menninger Clin.* 2: 74-88 (May) 1938.

or rest by their society. We have no queens in the human species in this same sense. In the higher levels of life each pregnant animal must supply its own food and self protection. Until we know more we must be very cautious about statements, even though we must be guided by general opinion. Our Committee on the Health of Women in Industry expects to contribute toward a better understanding of women in industry in a fair and equitable manner for both the employer and the employee.

COMMANDER J. MURRAY STEIFF, Bethesda, Md. In connection with Dr. Harrison's remarks about uremia in bed, I had the interesting experience of seeing at least three persons whose renal function was poor, who had considerable nitrogen retention, get up about the wards and go home, and at the same time the degree of nitrogen retention diminished considerably. It did not disappear altogether. In a large proportion of patients with chronic rheumatic heart disease who had been in bed for months, when allowed to get up and their activity increased, it was found that the pulse rate and the sedimentation rate and often the fever all disappeared as the mobility of the joints or the function of their hearts appeared to be increased.

DR. D. J. LEITHAUSER, Detroit. Dr. Powers reported a series of 100 surgical patients subjected to "early rising." I have a series of over 1,300 cases in which more than thirty different surgical procedures had been performed—a diaphragmatic herniorrhaphy, splenectomies, gastrointestinal surgery and the like. There was no case of uncontrolled atelectasis in the series. A cough or two at the first out of bed period would invariably expel the mucous plugs. These exercises in some instances were required every hour or two for several days before the lungs would remain clear. There were no deaths from pulmonary embolism in the series. There was 1 case of thrombophlebitis. The patient had a paravertebral injection of procaine hydrochloride. She left the hospital seven days later. There was no embolism in the series. There are precautions that require emphasis in getting patients out of bed "early." One should not employ catgut in long incisions. Catgut gives a foreign protein reaction, particularly heavy catgut. This delays healing, evisceration may result. I employ alloy steel wire in long incisions. There was no evisceration in this series. How should we get a surgical patient out of bed? First the patient assumes the lateral position, then is assisted to a sitting position. Next, the patient stands beside the bed. The presence of palpable rales is then determined by the nurse while the patient coughs; the cough also expels the mucous plugs. A few paces are now taken if the patient's condition permits, and then the patient returns to bed. A chair is not permitted for any length of time at the first or second out of bed period.

COLONEL E. V. AITKEN, Rochester, Minn. In the armed forces there are a large number of cases of acute rheumatic fever. The problem of management of subjects with acute rheumatic fever in the Army is not only a problem of management of the individual disease but also the problem of the management of the sick soldier considered in light of his relationship to the Army. The program aside from specific treatment, consists of rest in bed until the subject has had no tachycardia, no fever, no joint manifestations, and until the sedimentation rate and the electrocardiogram have been normal for seven to fourteen days. This program of rest supposedly has two purposes: the prevention of relapse of acute rheumatic fever and the prevention of cardiac damage. In this discussion I will omit the consideration of the question of whether or not recurrence of acute rheumatic fever results from activity. There is no good evidence that it does. Now I come to the questions which I hope our chairman will be able to answer. What is the evidence that rest in bed prevents development of heart disease in subjects with acute rheumatic fever? Secondly, when may persons with acute rheumatic fever and some evidence of cardiac involvement, either myocardial or valvular, be allowed out of bed? Thirdly, when may subjects with

acute rheumatic fever with some type of heart involvement be allowed to resume normal activity. The answers are of great interest. I am reasonably certain that the role of rest in the treatment of acute rheumatic fever has been unduly emphasized. The program as commonly carried out now encourages the development of nonorganic illness which centers about the heart and joints. It is reasonable to ask if harm would result from allowing subjects with acute rheumatic fever to have mild activity, out of bed, whenever they feel well enough. This symposium should encourage physicians to examine critically the present program of prolonged rest in bed as part of treatment of acute rheumatic fever.

DR. DON C. SUTTON, Chicago. I have seen the effects of Dr. Harrison's work in the attitude of certain young and enthusiastic practitioners in their treatment of coronary thrombosis in letting their patients up sooner than I think they should. Some ten years ago Dr. Davis and I tied the anterior descending branch of the coronary in dogs and produced an infarct. Some of the dogs were given sufficient sedatives to lie in the cage, others were allowed up and about and others were forced to use the treadmill. Those kept quiet often had healed infarcts that were almost invisible. The healing properties of a young dog are much more rapid and superior to those occurring in an old arteriosclerotic heart. The only aneurysms we saw of the ventricle were in dogs that had exercised. The only cardiac aneurysms that I have seen have been in patients that have not been kept in bed what I think is a long enough period. What that period should be, none of us know. I do know that in a small autopsy material I have seen hearts, the longest seven weeks after the primary thrombus, in which the infarct looked to me like quite soft granulation tissue. I have seen infarcts at the end of three weeks that could only be described as consisting of the material that is seen in a ripe alligator pear. I have my doubts that such patients should be allowed to exercise very early. Dr. Harrison called attention to the psychosis that develops as a result of prolonged bed rest. I have seen very little of it in patients that are told frankly what they have, the reasons for the rest, and what we can expect at the end of that rest period. I cannot quite see having cardiac patients up and about who have edema of the legs and perhaps dyspnea. I would think the two go together. I feel distinctly that those patients should be kept quiet, that there are other methods of taking care of the dangers of venous stasis, which is a very real danger. Dr. Dock stated that emboli from stasis in auricular fibrillation were more frequent with the patient lying in bed than they were when up and about. After twenty five years in the Heart Clinic at the County Hospital I am unable to prove a relationship between bed rest and pulmonary or other embolism from auricular fibrillation.

DR. LOUIS V. KATZ, Chicago, Ill. Rest does not consist only in putting a patient to bed. Emotional rest must also be obtained, worries should be removed, the patient kept from becoming restless and a regimen instituted to make rest less boring. Emotional upsets raise blood pressure and speed up the heart and therefore burden it. Coughing and constipation are other burdens that require treatment. A good night's rest has an amazing effect on cardiac patients. Sedation, including morphine, is an important adjuvant. The patient's position determines how restful his rest may be, the proper use of a bed rest or a reclining easy chair may be indicated. In short, rest is different from just putting the patient to bed. Bad results may not be due to bed rest per se but to the imperfect regimen of rest carried out. In two periods of cardiac convalescence it is safer to err by too long a period of rest than to smother by being less conservative, viz. after a myocardial infarction and after acute rheumatic carditis. I am not concerned that patients with congestive heart failure may not get enough rest because the symptoms and signs will soon put the physician straight. However, following recent myocardial infarction, patients often rebel against the restriction imposed because they feel all right and consider the physician overcautious. The infarcted region

takes a long time to heal, and care must be taken that this region doesn't "blow out" because the heart has not had a sufficient period of relative inactivity. It is better to play safe than to be sorry. The same principle of protracted rest is applicable to active rheumatic fever. A sharp distinction should be drawn between the stages of rheumatic heart disease when the heart is suffering from the scars of the infection and the period when the inflammatory process is still smoldering. As long as there is evidence of a smoldering inflammation of the heart, it is good therapy to keep the patient at rest. Dr. Harrison's fear that in chronic coronary disease invalids may be made by overpampering is justified. There is a tendency to overindulge such patients. However, chronic coronary disease often occurs in aggressive individuals who fail to make sufficient readjustment in spite of symptoms. A real service can be rendered by the physician who can discuss the situation with such a person and help to balance properly his existence between too much and too little activity.

DR. NICHOLSON J. EASTMAN, Baltimore: Dr. Hesselstine asked if the interval was the effect of accident, the effect of intentional child spacing because of social reasons, or the effect of intentional spacing because of disease processes. In a great majority of cases the interval was accidental. In a certain minority it was intentional because of social reasons, particularly among private patients, and in a negligible minority it was intentional because of medical indications.

DR. JOHN H. POWERS, Cooperstown, N. Y.: This program was instituted at the Mary Imogene Bassett Hospital two and one-half years ago. At first we were apprehensive about the results that might be expected. Consequently we started getting patients up on the fourth day, then on the third day, later on the second day and finally on the first day. Now all patients are ambulatory on the first day after all major operations, except in the presence of generalized peritonitis. By that I mean bacterial peritonitis. Patients do get up on the first day after closure of a perforated duodenal ulcer; no untoward effects have been observed. Certain things are compulsory if early activity after operation is to be permitted. Most imperative is accurate reapproximation of tissue with interrupted sutures, preferably of a nonabsorbable nature. I use silk almost entirely. In about 85 per cent of the cases reported silk was used without additional supporting sutures. If catgut is to be used, it is probable that stay sutures of nonabsorbable nature, silkworm gut or silver wire, should be used in conjunction. My experience with catgut alone has not been adequate to form an opinion as to the safety of its use as an unsupported suture material, if early activity is to be permitted. Postoperative thrombosis and embolism comprise two of the unpredictable complications and unsolved problems of surgery. Early activity after operation, walking about, deep breathing and muscular exercises in bed during the periods when the patient is recumbent will do much to reduce the incidence of postoperative thrombosis in the deep veins of the legs and the often fatal catastrophe of pulmonary embolism.

DR. WILLIAM DOCK, Los Angeles: I should like to make a correction. I participated in a symposium presided over by Dr. Gold and have been credited with Dr. Gold's statistics. Dr. Gold was studying the effect of digitalis on auricular fibrillation and brought ambulatory patients into the hospital. These patients were given enforced bed rest. Dr. Gold gave us the actual incidence of pulmonary embolism in this group of patients who were taken out of their ambulatory life for special study as compared with a similar group still attending the clinic. I don't think the emboli came from the auricle; I think they came from the leg and that the patients had thrombosis occurring after a week or two of bed rest. When a patient is put in bed and not allowed to sit on a commode once or twice a day, you are doing something to him that may be unnecessary. I haven't heard anybody introducing evidence that a cardiac patient is better off if he lies in bed than if he sits in an armchair. It is much easier to take care of people with myocardial infarction if they are told that you are going to keep them in one room for three months than if told that

you are going to keep them in bed six weeks. The patient gets along much better if allowed to sit in an armchair and sleep comfortably at night, than if kept in bed all day with the indigestion and discomfort of complete bed rest. I agree with Dr. Sutton that people should not run up and down stairs after myocardial infarction, but I don't see that that has any bearing on the point raised here.

DR. KARL A. MENNINGER, Topeka, Kan.: This symposium should begin next year with a discussion of what rest is supposed to mean, whether one is speaking about the posture in which an individual is placed in the sickroom (in bed or in a chair) or whether one refers to the degree of muscular activity that is to be permitted a patient, or whether we have in mind some kind of psychologic rest. The latter concept was introduced by one of the discussers who spoke of a man supposedly resting in bed with telephones and a radio going; this, he said, is not rest. To this I would react by declaring again the basic facts which psychiatric experience has demonstrated. The things that disturb the rest of people are not what they hear on the radio; they are what is in their hearts. It is what has happened to them, what is going to happen to them, what isn't going to happen to them, their own fears, their own disappointments, their own misgivings, theirs, not the radio's. The things that disturb people are not what come from outside; they are what come from inside. As a psychiatrist who sees some but relatively few patients with heart disease, I would certainly see no reason to proscribe the radio. I see a great deal of reason to urge that the cardiologist who really wants his patients to rest should make some attempt to remove from that patient the things that really prevent him from resting, the things that are inside him.

DR. TINSLEY R. HARRISON, Dallas, Texas: I do not believe any one knows the extent to which the activity of the rheumatic process is influenced by the degree of inactivity of the patient. Dr. Sutton found that while exercise carried out by his dogs within the first few days after ligation of a coronary artery produced a larger scar, similar exercise begun six days after the operation had no effect. Is that not correct?

DR. SUTTON: That is right.

DR. HARRISON: According to that, the dog should not exercise on the treadmill for six days. I think we would all agree with that. I too would like to emphasize the dangers of recumbency for a patient with congestive failure. Water in the legs is unsightly, but water in the lungs may be fatal. A person with dropsy gets more water in the lungs when he lies down, because in the body the law of gravity still holds. Concerning the "mushy" infarct: If a patient has a slowly developing infarct, the lesion may remain soft for several weeks. In such an instance the alterations in the leukocyte count and in the sedimentation rate will tend to persist. In my opinion patients should be kept at rest—although not necessarily in the recumbent position—until such manifestations have disappeared and then for perhaps two weeks longer. I agree with Dr. Katz that rest should be neither neglected nor abused. The question is What is neglect and what is abuse? In this regard one has to distinguish between rest for the patient as a whole and rest for the heart. There is no doubt that, as shown by the metabolic rate, the body as a whole expends less energy in the recumbent position. The work of the heart depends mainly on the output and the blood pressure. The blood pressure, when a person is sitting, is—as a rule—a little higher than during recumbency. However, in elderly persons it is often somewhat less in the sitting position. We know that the cardiac output per minute is definitely less sitting than lying. The work of the heart per minute is either about the same or somewhat less when a person sits than when recumbent. Since the heart rate is faster, the work of the heart per beat is definitely less in the sitting position. So far as cardiac rupture is concerned, it is probably the work per beat that is of importance. When we let the patient's body have a little activity, we may be actually resting his heart somewhat more.

THE FUTURE OF PHYSICAL MEDICINE

WITH SPECIAL REFERENCE TO THE RECOMMENDATIONS OF THE BARUCH COMMITTEE ON PHYSICAL MEDICINE

FRANK H. KRUSEN, M.D.
ROCHESTER, MINN.

At last the long delayed development of physical medicine seems to be at hand.

Physical medicine includes the employment of the physical and other effective properties of light, heat, cold, water, electricity, massage, manipulation, exercise and mechanical devices for physical and occupational therapy in the diagnosis or treatment of disease.

Physical medicine is applied biophysics. Dr. Alan Gregg,¹ medical director of the Rockefeller Foundation, said recently "Among my major hopes, let me record the wish that biophysics may be soon recognized as the brother of biochemistry, even if the time is now too late to consider it a twin. . . . One of the natural outgrowths of such a preclinical science might be the now long overdue development of physical therapy in this country."

Physical agents are employed not only for therapy but also for diagnosis; therefore the term physical medicine, long in use in England, is gradually replacing the designation physical therapy in this country. Physical medicine is the more generic and more inclusive term and as defined herewith it embraces physical therapy, occupational therapy and the employment of physical agents for diagnostic purposes.

Physical medicine has developed to a point at which it must be considered as a separate and distinct medical specialty. The recent tremendous interest in this special branch of medicine, culminating in the activities of the Baruch Committee on Physical Medicine, indicates that physical medicine has at last come of age.

Dr. Frank Ober,² assistant dean of Harvard Medical School, told me recently "The last war established orthopedic surgery as a recognized specialty. This war may well do the same for physical medicine." But the war is not solely responsible for the sudden maturing of physical medicine.

Since the pioneering days of Dr. Simon Baruch, the father of hydrotherapy in America, there has been a gradual unfolding of all phases of physical medicine until now it is beginning to burst into full scientific bloom.

This development is perhaps due to natural evolution. Dr. W. C. Davison,³ dean of Duke University School of Medicine, has mentioned that medicine has gone through four periods: (1) a primitive period in which the employment of physical agents played an important role, (2) the renaissance period, (3) the period of pharmacy and (4) the modern period during which we have emphasized successively prevention, pathology, bacteriology, biochemistry, surgery, specific therapy and now we are back to nonspecific and physical therapy, which, Davison concluded, "demands increased study and greater use." We must treat the patient as well as the disease.

From the Section on Physical Medicine, Mayo Clinic.
Read before the Section on Experimental Medicine and Therapeutics at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

1. Gregg, Alan: A Critique of Medical Research, *Scient. Monthly* 58: 365-372 (May) 1944.

2. Ober, F. R.: Personal communication to the author.

3. Davison, W. C.: The Evolution of Therapy—A Plea for Treating the Patient as Well as His Disease, *South. Med. & Surg.* 100: 457-458 (Oct.) 1938.

The Council on Physical Medicine of the American Medical Association and more recently the Committee on American Health Resorts have contributed largely toward the development of physical medicine.

Still more recently the National Foundation for Infantile Paralysis, on the advice of a distinguished group of scientists headed by Dr. Walter Cannon, recognized the need for the advancement of physical medicine and provided the first large grant for establishment of a center for teaching and research in physical medicine at the University of Pennsylvania.

The National Research Council has recognized the need for more study of the employment of physical agents; particularly in the management of peripheral nerve injuries, and has made numerous grants for research in this field.

Finally our famed elder statesman and humanitarian Mr. Bernard M. Baruch, impressed with the possibilities of physical medicine by his father, the late Dr. Simon Baruch, appointed a committee headed by Dr. Ray Lyman Wilbur to make a survey and to report on the programs deemed best for adequate development of physical medicine in the United States.

This survey committee was composed of eight men: (1) Dr. Ray Lyman Wilbur, Stanford University, Stanford University, Calif. (chairman); (2) Dr. William T. Sanger, Medical College of Virginia, Richmond (vice chairman); (3) Dr. Frank H. Krusen, Mayo Clinic, Rochester, Minn. (director-secretary); (4) Capt. Charles F. Behrens (MC), U.S.N., Bethesda, Md.; (5) Dr. Carl R. Comstock, Saratoga Springs, N. Y.; (6) Dr. John S. Coulter, Northwestern University, Chicago; (7) Dr. Kristian G. Hansson, Cornell University, New York, and (8) Lieut. Col. Benjamin A. Strickland, Jr., M. C., U. S. Army, Tucson, Ariz.

Eight subcommittees, composing a group of forty scientists, were appointed. These subcommittees dealt with the following phases of physical medicine: (1) teaching, (2) basic research, (3) clinical research, (4) public relations, (5) rehabilitation, (6) hydrology and health resorts, (7) occupational therapy and (8) prevention and body mechanics.

The subcommittees, in turn, consulted directly more than 400 outstanding scientists concerning various phases of their problem.

The survey was begun on Nov. 1, 1943 and the final meeting of the committee was completed on Jan. 30, 1944.

NEEDS OF PHYSICAL MEDICINE

It is obvious that the chief needs for proper development of physical medicine are:

1. An adequate supply of physicians who can teach and use physical medicine.
2. More extensive basic and clinical research in physical medicine.
3. Proper use of physical medicine in relation to wartime rehabilitation and peacetime physical preparedness.

On completion of its survey, the committee recommended the following program for sound development of physical medicine on a lasting basis:

Teaching.—To develop an adequate program in teaching of physical medicine there is need for:

1. More teachers of physical medicine. (This is the pre-eminent need.)
2. Several extensive graduate courses to train teachers of physical medicine.

3. A central body to promote education in physical medicine.
4. Establishment of three to five centers of physical medicine at large medical schools.
5. Establishment of fellowships in physical medicine.
6. Better teaching of physical medicine to undergraduate medical students.
7. More physical therapy and occupational therapy technicians.
8. A recruitment program to obtain these technicians.
9. Better teaching and correlation of the work of these technicians.

Basic Research.—1. Controlled scientific investigation of the fundamental aspects of physical treatment of disease is of utmost importance in any program which is established for the advancement of physical medicine.

2. Basic research can be organized most economically and effectively where there are expert investigators and when it is associated directly with clinical research and practice.

3. Means should be provided for bringing medical research laboratories into easy contact with the research laboratories of academic institutions and commercial organizations.

4. Quick results are not to be expected from any plan for adequate development of basic research.

Clinical Research.—1. Approved methods for evaluation of clinical research should be employed.

2. Basic and clinical research should go hand in hand.

3. Teaching of physical medicine is done best at medical schools which are conducting adequate clinical research.

Public Relations.—1. Physical medicine has not been given the recognition that it merits by the medical profession or by the public at large.

2. Wide dissemination of appropriate information is necessary. Only through financial support and adequate understanding can a long range program of general information be developed. Intelligent and discriminating publicity which will reach all elements of our population is required.

Rehabilitation.—Medical rehabilitation is the restoration of people handicapped by disease, injury or malformation as nearly as possible to a normal physical and mental state. Medical rehabilitation fills the gap between the customary end point of medical attention and the real necessities of many patients.

In 1940, 4,000,000 persons suffered from permanent physical disabilities and the annual increment was 800,000. In those prewar days the figures were enormous, and since the war they have increased to staggering proportions.

1. Wartime and postwar physical rehabilitation concerns not only the armed services but also industry and the Veterans Administration.

2. The most immediate and pressing problem is to provide needed personnel.

(a) There is a definite shortage of physicians trained in physical medicine who would be capable of directing rehabilitation services.

(b) There is an acute generalized shortage of physical therapy and occupational therapy technicians. Only one fifth the number required is now available.

3. Industry should cooperate in the placement of handicapped persons in suitable positions. It has been estimated that for every dollar spent for rehabilitation \$47 is returned to society.

4. Industrialists need further information concerning the valuable services which partially disabled persons can perform.

5. Industrial physicians need proper knowledge of rehabilitation problems.

6. Cooperation between labor, industry and medicine is essential.

7. Liaison between various rehabilitation services should be good.

8. There is need for a carefully organized over all scheme for rehabilitation of war casualties.

Hydrology and Health Resorts.—There is need for:

1. Basic research in laboratories where there can be sound evaluation of the effects of hydrotherapeutic procedures and spa therapy.

2. Improved teaching of hydrology and spa therapy in medical schools.

3. Better medical supervision of the therapeutic procedures employed at health resorts.

4. More extensive use of existing health resorts for rehabilitation of war casualties.

5. Efforts to prevent the alarming tendency to abandon the use of valuable spas.

Occupational Therapy.—Occupational therapy provides a graded program of activity to restore maximal physical and mental function or seeks to divert a person and improve morale by arousing his interest, courage and confidence.

There is need for:

1. Medical direction of hospital departments of occupational therapy. This is considered necessary for their proper development.

2. Encouragement of programs for training of volunteer aides to assist qualified occupational therapy technicians.

3. Appointment of a qualified field secretary in occupational therapy to assist in spreading correct information, recruiting of students and standardizing courses.

4. Establishment of an information center to demonstrate new educational methods, corrective techniques and apparatus employed in modern occupational therapy.

5. Development of a program to encourage more teaching of occupational therapy as part of a suitable course in physical medicine in the medical schools.

Curative Workshops: Curative and sheltered workshops in which both occupational and physical therapy are administered for rehabilitation of the disabled are becoming increasingly useful in various communities. They should be operated under direct medical supervision. Because of their value in relation to the war, their further development should be encouraged and, since physical and occupational rehabilitation should often be given simultaneously with medical and surgical treatment, curative workshops should be organized in conjunction with general hospitals.

Rehabilitation and Industry: Both management and labor should be made cognizant of the importance of rehabilitation centers in which injured war workers can

be given occupational therapy, vocational training and avocational retraining.

Body Mechanics.—Body mechanics is the mechanical correlation of the various systems of the body. Normal body mechanics obtains when this mechanical correlation is most favorable to the function of these systems.

There is a need not only for further investigation of the mechanical correlation of the various systems of the body from the standpoint of static posture but also for a more detailed study of human motion. Furthermore, there is a definite need for careful study of the various manipulative procedures which are employed therapeutically to alter the structural mechanics of the human body.

SUMMARY OF RECOMMENDATIONS OF THE COMMITTEE

Immediate Program.—1. Organization of a central office. The committee believes that there will be need for the establishment of a central office with staff, which should serve as a sympathetic supportive mechanism, to promote and to coordinate, rather than to direct, research in physical medicine. (This office has been established at 597 Madison Avenue, New York 22, with the following personnel: Dr. Ray Lyman Wilbur [chairman], Dr. Frank H. Krusen [director], Dr. Ernest J. Jaqua [educational director] and Miss Grace Keefe [executive secretary].) The committee suggests that this central office should include:

(a) A governing board, whose duty should be to distribute the original funds provided by the donor or other funds which may be given for similar purposes. (An administrative board, consisting of Dr. Wilbur, Dr. Krusen and Miss Mary A. Boyle, has been appointed.)

(b) An advisory board of experts in physical medicine and related medical fields, to give advice concerning the scientific aspects of research and teaching in physical medicine. (A scientific advisory committee has been established. This committee has the following members: Dr. John Stanley Coulter, Chicago, professor of physical therapy, Northwestern University Medical School and chairman of the Council on Physical Medicine of the American Medical Association; Dr. John F. Fulton, New Haven, Conn., Sterling professor of physiology, Yale University Medical School; Dr. Charles Gordon Heyd, New York, professor of surgery, New York Post-Graduate Medical School, Columbia University, and Past President of the American Medical Association; Dr. Andrew C. Ivy, Chicago, Nathan Smith Davis professor of physiology and head of the department of physiology, Northwestern University Medical School, and consultant to the Bureau of Medicine and Surgery, Navy Department, and to the Planning Division of the Office of the Quartermaster General of the Army; Dr. Chauncey D. Leake, Galveston, Texas, vice president and dean, Medical Branch of the University of Texas; Dr. Frank R. Ober, Boston, John and Buckminster Brown clinical professor of orthopedic surgery and assistant dean in charge of graduate courses, Harvard Medical School; Dr. Winfred Overholser, Washington, D. C., superintendent of St. Elizabeth's Hospital [Washington, D. C.] and professor of psychiatry, George Washington University School of Medicine, and chairman of the Committee on Psychiatry of the National Research Council; Dr.

Francis O. Schmitt, Cambridge, Mass., professor of biology and head of the Department of Biology and Biological Engineering, Massachusetts Institute of Technology.)

2. Establishment of teaching and research centers in physical medicine at interested medical schools. The committee recommends:

(a) That certain medical schools which are interested should be given early opportunity to determine whether or not they desire to undertake more extensive programs in physical medicine. Furthermore, it is recommended that support be given to the enlarged teaching and research projects in physical medicine in the schools which are selected. These schools should be provided with the subsidies needed for enlargement of their programs and allowed complete freedom in development of their projects. (Three centers have been subsidized.)

(b) That all of the medical school centers of physical medicine promote the training of teachers (both medical and technical) in the basic sciences and clinical aspects of physical medicine. (Such centers at a few of our larger interested medical schools could supply the teachers so badly needed in many of the other medical schools. Eventually all approved medical schools should provide adequate teaching of physical medicine.)

(c) That one of the medical school teaching and research centers might become a model center in which all phases of physical medicine, including physical therapy, occupational therapy, electronics, hydrology, climatology, manipulative procedures and physical rehabilitation could be developed. (Columbia University College of Physicians and Surgeons has been given \$400,000 to establish this model center.)

(d) That one of the research and teaching centers devote its major attention to the problems of hydrology, climatology and spa therapy. (The Medical College of Virginia has been given \$250,000 to establish this center.)

(e) That one of the centers of physical medicine devote its major attention to the preventive and manipulative aspects of the structural mechanics of the human body. (New York University has been given \$250,000 to establish this center.)

(f) That because of the increased importance of electronics and other physical agents, one of the centers of physical medicine promote the coordination of the work in research laboratories devoted to projects in physical medicine with the work in other research laboratories, commercial and academic, in the hope of furthering the development of electronic and other physical equipment which could be employed in research in, and clinical application to, physical medicine.

(g) That one of the centers on physical medicine promote special clinical investigations of the psychologic and psychiatric aspects of physical medicine, with special reference to a study of the value of personal contact between physician and patient, including an investigation of the psychic effect of the "laying on of hands."

(h) That all of the centers for physical medicine promote a program for better coordination of physical therapy, occupational therapy, physical rehabilitation and spa therapy.

(i) That there should be provided a combination, or team, of workers at each center for physical medicine

(a specialist in clinical physical medicine and appropriately trained and interested laboratory scientists) to coordinate their work and to attract to the center other investigators and workers (both medical and technical).

(j) It is essential that centers training physicians and technicians should stress the importance of direct medical supervision by qualified physicians of technicians' work and also the importance of proper training of technical personnel to assist these physicians. Only when both physicians and technicians are thoroughly trained, and they appreciate each other, can there be effective treatment of the patient by physical measures.

3. Establishment of fellowships and residencies in physical medicine. The committee recommends:

(a) That support be given to the establishment of fellowships and residencies for interested young physicians, and other scientists, who can be trained in the teaching of such subjects as clinical physical medicine and basic research in physical medicine.

(b) That the previously mentioned centers for physical medicine consider training such fellows in hydrology, climatology and spa therapy, as well as in electronics, physical rehabilitation and manipulative procedures, and that special attention be given to kindred subjects, such as industrial medicine, treatment of the aged and treatment of rheumatic diseases, diseases of the blood vessels and diseases of the nervous system. (One hundred thousand dollars has been set aside for provision of such fellowships.)

4. Promotion of teaching of, and research in, physical medicine in all approved medical schools. Many of the medical schools have expressed interest in improving their teaching programs in physical medicine to meet the demands of wartime and postwar rehabilitation. It is recommended that:

(a) Support be provided to improve curriculums in physical medicine, in graduate medical schools, undergraduate medical schools and technicians' schools.

(b) Support be given to teaching projects by supplying equipment, expert advice and other needs.

(c) Teaching projects in physical medicine in all of the sixty-five medical schools of the United States should be encouraged, and there should be included in such teaching projects consideration of all phases of physical medicine, including occupational therapy, manipulative therapy, spa therapy, climatology and physical rehabilitation. Physical medicine should be presented as a required course in every medical school. It is required just as much as any other branch of medicine.

(d) Subsidies be provided for a "circuit rider" who is a qualified and outstanding expert in physical medicine to visit and to assist deans and key teachers of interested medical schools in organizing teaching and research programs and developing separate departments of physical medicine. (Many of our medical schools do not now have qualified teachers of physical medicine and will need assistance in finding instructors.)

(e) Support be given to permit scientific trips for teachers and research workers in physical medicine, with special emphasis on conferences between workers at physical medicine centers. The underwriting of an annual meeting of the personnel of the various centers

would be valuable. Invited speakers could engage in symposiums, and recent advances could be discussed.

(f) Support be provided for exploring the possibility of coordinating more fully the practice of physical medicine with other special medical fields, such as psychiatry, dermatology, neurology, orthopedics, industrial medicine, rehabilitation and geriatrics.

(g) Support be provided for development, at certain interested medical schools, of short graduate courses in physical medicine for practicing physicians.

(h) Support be given for the development, at certain interested medical schools, of postwar "refresher" courses in physical medicine for medical officers who have had some previous training in physical medicine and who are returning to civil life.

(i) Support be given to the building up of a medical film library and of other visual and pedagogic aids dealing with various phases of physical medicine and with physical rehabilitation.

(j) A special prize be awarded, at intervals, for any suitable outstanding contribution to the field of physical medicine in the hope of stimulating the production of superior scientific presentations.

(k) Support be given for the financing of the preparation and publication of scientific books and monographs on physical medicine, including suitable textbooks for technicians and possibly also for the publication of the report of an annual symposium presented by workers at participating institutions. (One hundred thousand dollars has been set aside for support of these projects.)

5. Preparation of reports by the committee. It is recommended that the committee prepare:

(a) A special concise report for Mr. Baruch. (This was submitted and Mr. Baruch has given an initial sum of \$1,100,000 to activate the program.)

(b) A complete printed report on the findings of the committee for the information of the medical profession and the public at large. (This has been published in a 120 page booklet, which can be obtained free of cost from the Baruch Committee on Physical Medicine, 597 Madison Avenue, New York 22.)

(c) Certain more detailed reports on specific phases of physical medicine which have been investigated by the committee, for the information of physicians, technicians and laymen. (These will be prepared later.)

6. Promotion of wartime and postwar physical rehabilitation. Because of the constantly increasing responsibility and the urgency required to meet the emergency conditions, it is recommended that prompt steps be taken for meetings of a special committee which will coordinate and correlate all matters pertaining to basic research and rehabilitation in Army, Navy and civilian life; therefore it is recommended that support be given promptly:

(a) To wartime physical rehabilitation projects now on their way and to the establishment of a number of new ones.

(b) To the promotion of a joint national program for the recruitment of physical and occupational therapy student technicians.

(c) To a program for promotion of the use of Army and Navy spa resorts as convalescent and rehabilitation centers.

(d) To plans for acceleration and modification of occupational therapy technical training courses in order to meet present day rehabilitation needs.

(e) To the subsidizing of technical field secretaries in physical therapy and occupational therapy to coordinate the teaching in technicians' schools in order to meet the demands of wartime rehabilitation. [A committee on war and postwar physical rehabilitation and reconditioning has been established to coordinate these efforts. This committee has the following members: Major Walter E. Barton, M. C., A. U. S., Washington, D. C., assistant director of the Reconditioning Division and chief of the Blind and Deafened Rehabilitation Branch, Office of the Surgeon General, War Department; Capt. Charles F. Behrens (MC), U.S.N., Bethesda, Md., chief of the Radiological Service, Naval Medical Center; Dr. Dean A. Clark, senior surgeon (R) U. S. P. H. S., Washington, D. C., chief medical officer, Office of Vocational Rehabilitation, Federal Security Agency; Dr. Charles M. Griffith, Washington, D. C., medical director, U. S. Veterans Administration; Capt. Frederick A. Jostes (MC), U.S.N.R., Washington, D. C., Office of Rehabilitation, Bureau of Medicine and Surgery, Navy Department; Capt. Howard Montgomery (MC), U.S.N., Washington, D. C., chief of rehabilitation, Bureau of Medicine and Surgery, Navy Department; Col. Howard A. Rusk, M. C., A. U. S., Washington, D. C., chief of Convalescent Division, Office of the Air Surgeon, War Department; Mr. H. V. Stirling, Washington, D. C., director of the Vocational Rehabilitation Service, Veterans Administration; Lieut. Col. Benjamin A. Strickland Jr., M. C., U. S. Army, Tucson, Ariz., commanding officer, A. A. F. Regional Station Hospital, Davis-Monthan Field, Tucson, Ariz., and formerly head of the Physical Therapy Department, Walter Reed General Hospital; Col. Augustus Thorndike, M. C., A. U. S., Washington, D. C., director, Reconditioning Division, Office of the Surgeon General, War Department, and associate in surgery, Harvard Medical School (on leave of absence), and Dr. William S. Tillett, New York, professor of medicine, New York University College of Medicine, and chairman of the Committee on Convalescence and Rehabilitation of the Division of Medical Sciences, National Research Council.]

Eventual Program.—In conjunction with the eventual program, the committee recommended simply the promotion of certain general projects for the advancement of physical medicine and the adoption of certain resolutions concerning projects on which the committee looked with favor. Space does not permit their discussion here, but this information will be found in the printed report.

REACTIONS TO THE PROGRAM THAT WAS SUGGESTED BY THE BARUCH COMMITTEE ON PHYSICAL MEDICINE

Immediately on announcement of the program of the Baruch Committee on Physical Medicine, widespread approval and enthusiastic endorsement of the project were received. Scientists and laymen alike have been prompt in praising this effort. This led Mr. Baruch to comment that he had never seen anything with which he had been connected—"even the work in the war"—receive such amazingly sympathetic treatment. Leaders in military medicine and in medical science in general gave enthusiastic approval.

In closing, it seems pertinent to quote a few of these statements:

MAJOR GEN. NORMAN T. KIRK: "The Medical Department of the Army is vitally concerned with any new scientific enlightenment in this field, especially as it pertains to reconditioning of wounded soldiers and sailors. You are to be highly commended for the inauguration of a much needed scientific approach to the physical aids to medicine and especially its bearing on the program of restoration of function and salvage of manpower."

VICE ADMIRAL ROSS T. MCINTIRE: "The Medical Department of the Navy is in complete accord with the principles and recommendations laid down in your report to Mr. Baruch. I can assure you that the Bureau of Medicine and Surgery will give every assistance possible to the successful carrying out of your program."

MAJOR GEN. DAVID N. W. GRANT: "Mr. Baruch and your committee have rendered an invaluable service, and now, with the establishment of a permanent committee and the splendid endowment fund, the work in this field is bound to be greatly accelerated and should make valuable contribution both to military and to civilian medicine."

GEN. FRANK T. HINES: "A splendid opportunity for public service exists in the field contemplated. I will give it my full cooperation and whatever help I can to make it a success."

DR. LEWIS H. WEED, Chairman, Division of Medical Sciences, National Research Council, Washington, D. C.: "I have carefully read the tentative report of the Baruch Committee on Physical Medicine. . . . Please know that I am tremendously interested in the whole potential program of the Baruch committee. It represents a most needed development in this country and I am sure that progress will be forthcoming by proper contemplation of the important initial steps."

DR. FRANCIS O. SCHMITT, Massachusetts Institute of Technology, Cambridge, Mass.: "I should like to express great admiration and appreciation for the thoroughness with which the committee has explored the various possibilities in this important field and for the concise manner of presentation of the conclusions in the report. It is a monumental document, and, if the major points in the program can be brought to realization, medicine and the general public will be greatly indebted to your committee."

DR. EMORY W. MORRIS, President, W. K. Kellogg Foundation, Battle Creek, Mich.: "I have reviewed the report of the Baruch Committee on Physical Medicine with a great deal of interest. I agree with the report in general; in fact, it is excellent."

DR. DONALD C. BALFOUR, Director, Mayo Foundation, Rochester, Minn.: "I am gratified that such a complete and comprehensive report on the status of physical medicine has been made in such a short time. . . . Anything that will contribute to the better physical and mental health of the people of this country and to the development of teaching methods should be encouraged to the utmost, and I am sure that the general objective of the Baruch Committee will meet with an enthusiastic response. Mr. Baruch's generous gift in support of the program of the committee is another evidence of his keen vision and kindly altruism."

DR. ALAN GREGG, Director of Medical Sciences, the Rockefeller Foundation, New York: "I would like to convey to you my admiration for the work you have done, since it is a very definite accomplishment, and something that I am proud to be related to, even in a very secondary role."

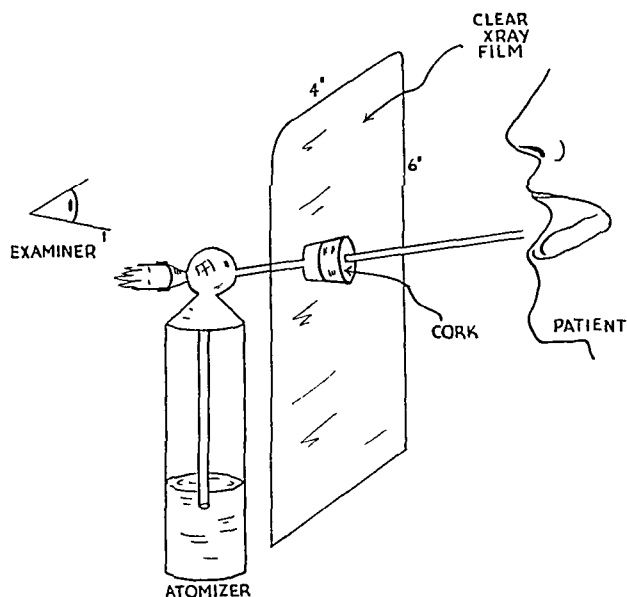
Up until recently with regard to the advancement of physical medicine, as with the weather, every one has talked about it but no one has done anything. Now it is apparent that something very definite is being done and that my opening statement is justified. At last the long delayed development of physical medicine seems to be at hand.

Clinical Notes, Suggestions and New Instruments

PROTECTION OF DOCTORS AND NURSES WHILE SPRAYING THROATS

CAPTAIN R. V. L. CAMPBELL
MEDICAL CORPS, ARMY OF UNITED STATES

The accompanying sketch illustrates a method of protecting nurses and doctors while spraying throats with an atomizer. The x-ray film affords good visibility and protects not only the face but the hand of the operator if the film is extended



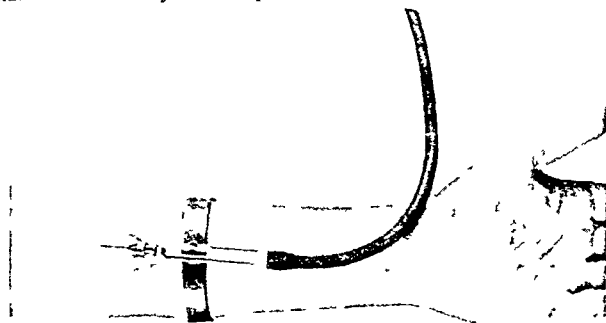
Method of protecting doctors and nurses while spraying throats.

low enough to cover the hand holding the atomizer. This can be made in five minutes from the materials usually found in a doctor's office

A CLAMP TO HOLD INTRAVENOUS NEEDLE IN PLACE

MAJOR LOUIS K. PITMAN
MEDICAL CORPS, ARMY OF THE UNITED STATES

This is a simple device for holding an intravenous needle in place. It consists of a clamp which fits comfortably around the forearm without constricting the blood supply, in the same manner as a bicycle clamp fits around the trouser cuff. A



Clamp to hold intravenous needle in place

smaller clamp mounted on a swivel which also allows some forward and backward movement is attached to the larger clamp. This small clamp holds a glass tube into which a needle is fitted. The needle is thus kept in a steady position and the use of adhesive tape is eliminated.

The clamp can be put in place and removed very quickly and easily.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin E. Smith, M.D., Secretary

ESTROGENIC SUBSTANCES (Water soluble).—Premarin.—An amorphous preparation containing the naturally occurring, water soluble, conjugated forms of the mixed estrogens obtained from the urine of pregnant mares.

The principal estrogen present in estrogenic substances (water soluble) is sodium estrone sulfate. Varying small amounts of other equine estrogens and relatively large quantities of non-estrogenic material are also present in the mixture. The total estrogenic potency of the preparation is expressed in terms of an equivalent quantity of sodium estrone sulfate.

Actions and Uses.—Water soluble estrogenic substances are used in the same conditions for which other estrogenic substances are employed.

Dosage.—For the control of menopausal symptoms, 1.25 mg is usually sufficient. If after a few days of treatment the response is not satisfactory, the dose may be increased. After symptoms have been brought under control the dosage can usually be reduced. For the treatment of senile vaginitis, kraurosis vulvae and pruritus vulvae, 1.25 to 3.75 mg daily should be sufficient.

Preparation —

Estrogenic substances (water soluble) may be prepared in the following manner. To fresh urine from mares pregnant five months or longer, sufficient xylene is added to prevent hydrolysis of conjugated estrogens. The urine is then concentrated under reduced pressure at 40 to 50°C, the pH being maintained at or near neutrality. The urine concentrate is extracted several times with water saturated butyl alcohol. The butyl alcohol extracts are washed several times with tenth normal sodium hydroxide, then twice with small volumes of water and then concentrated to a small volume under reduced pressure at 40 to 50°C.

The concentrate is taken up in acetone and, after the insoluble material has been removed, the acetone solution is concentrated to a small volume. The acetone concentrate is treated with an excess of ether and the precipitate obtained is removed and dried. This precipitate, which varies in color from reddish brown to almost white, is an amorphous, hygroscopic powder possessing a characteristic odor. It is soluble in water, dissolving freely to form a pale yellow solution, soluble in alcohol and acetone, insoluble in benzene and ether.

Estrogenic substances (water soluble) may also be removed from the urine of pregnant mares by selective adsorption and elution. The eluate may be purified by solvent partition and finally reduced to powder in a vacuum dryer.

Estrogenic substances (water soluble) are assayed chemically by a modification of the phenol sulfonic acid colorimetric method introduced by Kober and biologically by oral administration to adult ovariectomized rats, using the technique of Kahut and Doisy. The standard of reference for the chemical assay is the international standard for estrone. This standard being inapplicable to the biologic assay of conjugated estrogens in the rat assay biologic variation is controlled by the use of a house standard preparation of conjugated estrogens.

AYERST, McKENNA & HARRISON (U. S.) LTD.

Premarin Tablets: 1.25 mg

U. S. trademark 397,925

CITRATED NORMAL HUMAN PLASMA (See New and Nonofficial Remedies, 1944, p. 533).

The following dosage forms have been accepted:

HYLAND LABORATORIES, LOS ANGELES

Normal Human Plasma: 300 cc. bottle containing dextrose 5 per cent and preserved with merthiolate 1:10,000.

Normal Human Plasma (Dried): 250 cc. ampul containing a sufficient amount to yield 250 cc. of restored plasma, preserved with 1:25,000 phenylmercuric borate; packaged with a 250 cc. bottle of distilled water containing phenylmercuric borate 1:100,000 as a preservative.

ASCORBIC ACID (See New and Nonofficial Remedies, 1944, p. 620).

The following additional dosage form has been accepted:

THE SMITH-DORSEY COMPANY, LINCOLN, NEB.

Tablets Ascorbic Acid: 50 mg.

NICOTINAMIDE (See New and Nonofficial Remedies, 1944, p. 617).

The following dosage form has been accepted:

AMERICAN PHARMACEUTICAL CO., INC., NEW YORK

Tablets Nicotinamide: 50 mg

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

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PROBLEMS IN MEDICAL EDUCATION

The Council on Medical Education and Hospitals presents a series of articles on topics of current major importance in medical education. The first of these is a report on further education desired by medical officers after the present war. This study is being conducted by the Committee on Postwar Medical Service, with which the Council on Medical Education and Hospitals operates in close collaboration. This committee was established in February 1943 by the American

Medical Association with the cooperation of the American College of Physicians and the American College of Surgeons. There is also representation on the committee from the Association of American Medical Colleges, the American Hospital Association, the Catholic Hospital Association, the Federation of State Medical Boards of the United States, the Procurement and Assignment Service, the Advisory Board for Medical Specialties and the Veterans Administration.

FUTURE EDUCATIONAL OBJECTIVES OF MEDICAL OFFICERS

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Objectives in future medical educational training were derived from information from the results of returned questionnaires of medical officers, a review of the probable educational facilities that will be available to veterans after the war, official actions of the Council on Medical Education and Hospitals, the Advisory Board for Medical Specialties and other representative bodies and informal discussions with medical officers, deans and leaders in medical education and hospital administration.

At the request of the Committee on Postwar Medical Service a questionnaire was devised and mailed to 3,000 medical officers on duty with the armed forces. The questionnaire consisted of five parts: general information, educational, industrial, licensure and economic. A preliminary report of the results of the first 927 returned questionnaires was published in the JOURNAL, June 24, 1944, page 558.

One thousand questionnaires were reviewed from an educational point of view. The questionnaires were mailed to every fifteenth name on an alphabetical list

of all officers on duty with the Army, Navy and Public Health Service in the belief that a fair sample was obtained. The number of returned questionnaires indicated that information was returned from nearly every area in the world to which our troops in numbers are on duty. As further replies are received they will be tabulated and additional reports made.

Questionnaires were divided into six groups for study on the basis of date of graduation from medical school. It was felt that dates of graduation would be a better index than age of medical officers in the determination of future medical education desired. In the original report the questionnaires were divided into four groups according to year of licensure; however, an additional breakdown into smaller groups, especially of the recent graduates, was believed to yield more profitable information. Group 1 consisted of those graduated from 1941 to 1943 inclusive. Group 2 included the graduates of 1938 to 1940 inclusive, and group 3 the graduates of 1935 to 1937. In the original report group 1 consisted of those who were licensed in 1937 to 1943. Group

4 consisted of those graduated in 1930 to 1934 inclusive; group 5, 1920 to 1929, and group 6, those graduated prior to 1920.

There was the following number of officers in each group:

Group No.	Years of Graduation	Desire No Educational Courses	Desire 6 Months of Unspecified Period	Desire More Than 6 Months' Training	Total	Per Cent
1	1941-1943	4	41	119	164	16
2	1938-1940	21	38	148	207	21
3	1935-1937	39	82	69	190	19
4	1930-1934	63	79	50	222	22
5	1920-1929	60	82	38	180	18
6	Before 1920	17	16	4	37	4
Total.....		204	338	458	1,000	100

NOTE.—This table refers to number of officers and not to number of courses. All the following tables give the number of courses and not the number of officers.

Questionnaires were carefully analyzed in an effort to obtain as much information as possible concerning future medical educational plans. Many men requested courses in several subjects. Each request for a specific course of instruction was tabulated except when a request was made for more than three different subjects in a short period of time. The latter were entered as requests for general courses. All requests for refresher, "brush-up" and review courses or "visiting clinics" were also tabulated as general courses.

Educational requests were made for varying periods of time. A specific request, such as three months or two years, was easily tabulated. An average was used when requests were for two periods. For example, requests for six to twelve months or one to three years were counted as one nine month course and one two year course respectively. Also some men requested short six month review courses in addition to more definitive courses of several years' duration, and both requests were counted. Consequently there were more requests for courses than officers in some groups.

Each group was subdivided into three sections depending on the amount of training that was requested:

(a) No further training: Officers who desired no future training or who failed to answer that part of their questionnaire were considered as one section.

(b) Review courses: Men who requested a specified time up to six months were considered as those desiring review courses and were thus classified. In addition, men who did not give a definite time of training and from whose questionnaires it appeared they desired a short future course were also grouped as requests for review courses.

(c) House officerships: The third section comprised those men who expressed a desire for definitive training of more than six months that could be considered as residency or fellowship training. Questionnaires from men whose residency was interrupted by an early call to military duty and who requested "time enough for completion of board" were marked as requests for one or more years of study, depending on the amount of residency.

A detailed analysis of the six groups showed the following significant results:

GROUP 1 (GRADUATES OF 1941 TO 1943)

Almost all recent graduates came directly from their hospital training into the armed forces. There were only four questionnaires with the educational section

unmarked submitted by men who came directly from internship. The remainder desired additional training.

Men Who Want Six Months or Less of Future Education.—More than one quarter of the graduates of 1941 to 1943 inclusive desired a future training course of six months or less. There were 32 who came directly from internship and 8 who came from a residency. In many instances the residency was interrupted before its normal completion. There were 6 requests for three month training courses and 23 for six month courses. Thirteen men made 26 requests for short courses but did not specify the time they desired to utilize for educational purposes. The following number of requests were made for courses in the following specialties:

Pediatrics.....	2		
Psychiatry and neurology....	2		
Orthopedic surgery.....	1		
Radiology.....	1	Surgery.....	10
Obstetrics and gynecology....	2	Anesthesiology.....	1
Internal medicine.....	11	Neurologic surgery.....	1
		General.....	21

Many men failed to answer the questions concerning the location at which they desired their future training. About one third, or 15, did not give the name of an institution. Training was desired by the remainder at either specific locations, such as hospitals or medical centers, or geographic areas, such as cities or states. The following number of cities or locations were requested:

Boston.....	4	Philadelphia.....	1
Chicago.....	4	Baltimore.....	1
New Orleans.....	4	Ann Arbor, Mich.....	1
New York.....	2	Rochester, Minn.....	1
California.....	2	St. Louis.....	1

Men Who Want More Than Six Months of Future Training.—More than two thirds of the recent graduates in group 1 desired quite extensive educational courses. There was a total of 119 men, of whom 99 entered the armed forces directly after internship. There were 16 who came from a residency, many of whom had their training interrupted. Only 1 of the section came from general practice and 1 from special practice.

There were 29 requests for a one year course of study, 55 requests for a two year course of study and 57 requests for three or more years of study. In addition there were 3 requests for a short six month refresher course by men who wanted either a two or a three year course in some definite specialty. There were no requests for a nine month course of study. The following number of requests were made for the following specialties:

Pediatrics.....	5	Pathology.....	2
Psychiatry and neurology....	4	Ophthalmology.....	1
Orthopedic surgery.....	3	Otolaryngology.....	3
Dermatology and syphilology	1	Surgery.....	22
Radiology.....	1	Anesthesiology.....	1
Urology.....	4	Neurologic surgery.....	3
Obstetrics and gynecology....	20	General.....	11
Internal medicine.....	23		

Many men failed to answer the question concerning the institution at which they desired their training, and others named several institutions. An institution was not named in 31 questionnaires. The remaining number of men furnished at least 2 or more requests for the following cities or locations:

Boston.....	14	Philadelphia.....	4
Rochester, Minn.....	9	New York.....	3
Chicago.....	8	Baltimore.....	2
Ann Arbor, Mich.....	6	California.....	2
Ohio.....	6	New Orleans.....	2
St. Louis.....	6	Washington, D. O.....	2
Minneapolis.....	4		

GROUP 2 (GRADUATES OF 1938 TO 1940 INCLUSIVE)

Medical Officers Who Do Not Desire Any Additional Training.—A small group, or 21 medical officers, failed to indicate any desire for additional training. Seven of the men definitely marked their questionnaires that they did not desire further medical education, and 14 left that part of their questionnaires blank. Most of the men came from hospital service or practice. There were 2 who had left internships and seven residencies to enter the service. About one half of the men, or 11, were actually engaged in some practice, such as 6 in special practice, 3 held full time positions and 2 were in general practice. The American board had certified 3 of the men in special practice and 2 had received partial certification.

Men Who Want Six Months or Less of Future Education.—A total of 38 medical officers comprise the section of men in this category. About one third of them had left their hospital training period for duty with the armed forces. Two came into the Army after internship and 8 into the service directly after residency. Seventeen men were in general practice prior to their military service, and 9 were in specialty practice, of whom 3 were certified specialists. One man held a full time position.

Most of the men desired a review course of three to six months' duration. There were 18 requests for three month training courses, 21 for a six month training course, 4 for a two month training course and none desired a one month training course. The period of training was not specified on 16 questionnaires. Courses were selected in the following subjects:

Pediatrics.....	1	Orthopedic surgery.....	1
Radiology.....	1	Otolaryngology.....	1
Psychiatry and neurology.....	3	Surgery.....	10
Obstetrics and gynecology.....	10	Anesthesiology.....	1
Internal medicine.....	11	General.....	20

The institution at which training was desired was not mentioned by 18 medical officers. There were requests that training be given in the following communities by the following number of men:

California.....	3	New York.....	1
Chicago.....	3	Baltimore.....	1
Boston.....	2	Washington.....	1
Vermont.....	2	Tennessee.....	1
Pennsylvania.....	2		

Men Who Want More Than Six Months of Future Education.—About two thirds of the graduates of 1938 to 1940 inclusive desired definite future educational training courses. There were 148 medical officers in the section who wanted six months or more of training. About one half of the men came into the service directly after internship (32) or residency (40). Men who came from practice were in general practice (26), special practice (16) or full time medical practice (11). Requests came from 148 medical officers: 5 for nine month courses, 67 for one year courses, 56 for two year courses and 39 for three year courses or more. Only 2 of the section had American board certification and 5 had partially completed requirements. The following number of requests were made in the following courses:

Pediatrics.....	9	Pathology.....	5
Psychiatry and neurology.....	6	Ophthalmology.....	3
Orthopedic surgery.....	6	Otolaryngology.....	4
Dermatology and syphilology	1	Surgery.....	53
Radiology.....	4	Public health.....	1
Urology.....	4	Anesthesiology.....	3
Obstetrics and gynecology.....	27	General.....	12
Internal medicine.....	31		

About one third of the men failed to indicate an institution at which they desired their postgraduate training. Requests for courses by at least 2 men were given for the following locations:

Chicago.....	19	Philadelphia.....	5
New York.....	19	St. Louis.....	4
Boston.....	15	Minneapolis.....	4
Rochester, Minn.....	14	Iowa City.....	4
Ohio.....	7	Ann Arbor, Mich.....	3
California.....	6	Baltimore.....	2
New Orleans.....	5		

GROUP 3 (GRADUATES OF 1935 TO 1937 INCLUSIVE)

There were 39 officers who either did not desire additional medical educational training or who left their questionnaires concerning future plans blank. Most of the men, 21 medical officers, were in special practice before they entered duty and 5 were in general practice. Seven of the group held full time positions before entering military service. About one fourth of the section, or 10, were certified by an American board, and 2 others of the section had been partially certified. It appears that the latter could qualify for certification by a return to their civilian practice.

Medical Officers Who Desire Six Months or Less of Future Education.—A group of 82 medical officers signified that they desired some future medical educational training either of six months or of an undetermined period of time. About half of the section were in general practice (40) and the others in special practice (33) before they entered military service. Full time positions were occupied by 6 of the section, of whom 2 were medical teachers in medical schools. About one fourth of the entire section, or half of those engaged in special practice, had been certified by an American board. One medical officer was in the process of certification. Short refresher medical courses were desired by a majority of the men. Requests varied, 12 wanting a one month course, 7 a two month course, 26 a three month course, 52 a six month course and 19 an unspecified time. Requests were made for courses in the following specialties:

Pediatrics.....	5	Pathology.....	2
Psychiatry and neurology.....	4	Ophthalmology.....	6
Orthopedic surgery.....	3	Otolaryngology.....	3
Dermatology.....	1	Surgery.....	18
Urology.....	1	Anesthesiology.....	3
Obstetrics and gynecology.....	23	General.....	18
Internal medicine.....	29		

A variety of answers followed the location at which instruction was to be given. Requests varied from specific institutions, such as the Massachusetts General Hospital, the Presbyterian Hospital of Chicago and University of Minnesota, to cities and to general geographic locations, such as a Midwestern or Eastern city. The following centers were chosen by 2 or more men as being the most helpful in arranging for suitable postgraduate refresher courses:

Boston.....	11	Baltimore.....	3
New York City.....	8	California.....	3
Chicago.....	7	St. Louis.....	2
Philadelphia.....	5	Cincinnati.....	2
Rochester, Minn.....	3	Minneapolis.....	2

Medical Officers Who Want More Than Six Months of Future Training.—A section of 69 medical officers in group 3 expressed a desire to have longer periods of study than refresher courses. In the main the requests were for residencies or hospital fellowships. A few of them signified the desire of one year senior internships to be followed by suitable residency and then a specialty. A great number of these men were

in general practice (38) before entering the armed forces. There were 18 in special practice, of whom 8 had been certified by the American board and one was in the process of certification. Full time appointments were held by 12 of the section. A definite residency or fellowship was desired by 36 for one year, by 24 for two years and by 8 for three years, and 4 requested nine month courses.

The courses of instruction included:

Pediatrics.....	1	Ophthalmology.....	6
Psychiatry and neurology.....	3	Otolaryngology.....	4
Orthopedic surgery.....	3	Surgery.....	17
Radiology.....	4	Public health.....	1
Urology.....	3	Anesthesiology.....	2
Obstetrics and gynecology.....	5	Neurologic surgery.....	1
Internal medicine.....	11	General.....	9
Pathology.....	2		

Institutions were grouped in various centers in the tabulation of requests of medical officers. There were the following requests for the specific locations:

Philadelphia.....	13	Rochester, Minn.....	4
New York.....	9	New Orleans.....	3
Boston.....	8	St. Louis.....	3
Chicago.....	7	Minneapolis.....	2
Baltimore.....	5	Pittsburgh.....	2
California.....	5		

GROUP 4 (GRADUATES OF 1930 TO 1934 INCLUSIVE)

The graduates from medical schools during the years 1930 to 1934 inclusive were studied as a group.

Men Who Do Not Desire Any Future Medical Training.—There were 63 officers who did not desire any additional training. There were 43 men engaged in special practice before they entered active duty and 13 in general practice. Full time medical practice on a salary basis was indicated by 4 of this section. About two thirds of those in special practice were certified by an American board, or 29 officers. It was not surprising that this section of men do not desire any additional training, since more than three fourths of them indicated a strong desire for an early return to private practice.

Men Who Desired Six Months or Less of Future Education.—A group of 79 officers comprised this second section, of whom 35 indicated a training period of three months or less. The section was about equally divided between general practitioners (32) and specialists (35) prior to their entries into military service. Over one half of the latter, or 19, were certified by an American board. One officer held a full time salaried position. There were 11 requests for one month training periods, 8 for two month training periods, 28 for three month training periods and 46 for six month training periods. Seventeen requests did not specify the length of course. Postwar training was indicated in the following specialties:

Pediatrics.....	2	Pathology.....	1
Psychiatry and neurology.....	3		6
Orthopedic surgery.....	2		4
Dermatology and syphilology.....	1	Surgery.....	20
Radiology.....	4	Public health.....	1
Urology.....	2	Neurologic surgery.....	2
Obstetrics and gynecology.....	15	General.....	30
Internal medicine.....	17		

The name of the institution was not mentioned in about one half of the instances, or in 37 questionnaires. The following localities or cities were requested most frequently:

New York.....	11	Rochester, Minn.....	3
Chicago.....	4	Ann Arbor, Mich.....	2
New Orleans.....	4	Baltimore.....	2
Boston.....	3	Minneapolis.....	2
Philadelphia.....	3		

Men Who Want More Than Six Months of Future Training.—A total of 80 officers requested additional training in excess of six months. There were 43 in general practice and 33 in specialty practice. Of those in special practice, 14 were certified by an American board. There were 4 who held full time appointments, 1 of whom was a hospital administrator.

The amount of time that 17 requested was nine months, 48 one year, 23 two years and 5 three years.

The courses desired were as follows:

Pediatrics.....	1	Internal medicine.....	9
Psychiatry and neurology.....	4	Ophthalmology.....	14
Orthopedic surgery.....	2	Otolaryngology.....	13
Dermatology and syphilology.....	1	Surgery.....	23
Radiology.....	3	Plastic surgery.....	1
Urology.....	3	Hospital administration.....	1
Obstetrics and gynecology.....	7	General.....	11

The institutions at which training was desired was not mentioned in 28 cases. The following cities were named at which training was desired:

New York.....	14	Baltimore.....	3
Philadelphia.....	12	New Orleans.....	3
Boston.....	10	Ann Arbor, Mich.....	2
Chicago.....	7	St. Louis.....	2
Rochester, Minn.....	6		

GROUP 5 (GRADUATES OF 1920 TO 1929 INCLUSIVE)

Men Not Interested in Additional Educational Training.—An analysis of 60 men in group 5 who were not desirous of having additional training or undecided in the matter was undertaken. Thirteen of the section were in general practice, 2 held full time positions and the remainder (45) were in specialty practice. An analysis of the 36 men in the section who have specialty board certification and want no further education shows that most of them plan to reengage in private practice in their previous locality.

Men Who Desire Six Months or Less of Future Education.—A future educational program of six months or less was selected by 82 men in the section. Graduates of 1925 or later represented a majority of the section. Requests indicated that 9 desired a one month training course, 5 a two month course, 27 a three month course and 31 a six month course. There were 21 requests for courses of unspecified time. Forty-five of the section had previously been in specialty practice, of whom 18 were certified by American boards and 27 were in general practice. All requests indicated a type of review of refresher course. Future training was requested in the following specialties:

Pediatrics.....	5	Ophthalmology.....	5
Psychiatry and neurology.....	1	Otolaryngology.....	4
Dermatology and syphilology.....	5	Surgery.....	21
Radiology.....	2	Public health.....	1
Obstetrics and gynecology.....	6	Anesthesiology.....	1
Internal medicine.....	26	Neurologic surgery.....	1
Pathology.....	1	General.....	8

Training was desired at either specific institutions such as hospitals or medical centers, or geographic areas such as large Eastern cities and Midwestern cities, and followed closely that reported by previous groups.

Men Who Want More Than Six Months of Future Training.—There were 38 in this section, of whom about three fourths graduated after 1925. Eleven had been in general practice before their entry into the armed services and 15 mentioned specialty practice. A nine month course was indicated by 9, one year's training by 25, two years by 6 and three years by 1 officer.

The following specialties were selected:

Pediatrics.....	2	Pathology.....	1
Psychiatry and neurology....	3	Ophthalmology.....	1
Orthopedic surgery.....	1	Otolaryngology.....	3
Dermatology and syphilology	1	Surgery.....	7
Radiology.....	1	Public health.....	1
Urology.....	3	Hospital administration.....	1
Obstetrics and gynecology....	2	General.....	7
Internal medicine.....	8		

The training was desired in a wide variety of institutions located as follows:

New York.....	7	Boston.....	4
Chicago.....	5	California.....	4
Rochester, Minn.....	5	Ann Arbor, Mich.....	3
Philadelphia.....	5	New Orleans.....	3

The institution at which training was desired was either left blank or marked with a question mark on 24 questionnaires.

GROUP 6 (GRADUATES PRIOR TO 1920)

The oldest and smallest group consisted of 37 officers, 17 of whom did not desire any additional training or left the educational portion of their questionnaire blank. There were 16 men who requested 19 courses of six months or less, among whom 6 specifically asked for general courses. Requests were made as follows:

Pediatrics.....	1	Surgery.....	4
Psychiatry and neurology....	1	Hospital administration.....	1
Dermatology and syphilology	1	General.....	6
Internal medicine.....	5		

Four officers requested one year courses. Two requested courses in surgery, 1 in pathology and 1 a general course.

The following table summarizes the requests for educational courses by subjects for all six groups:

	Short Courses (6 Months or Less)	Long Courses (More Than 6 Months)	Total Courses
Anesthesiology.....	6	6	12
Dermatology and syphilology	8	4	12
Hospital administration.....	1	2	3
Internal medicine.....	99	87	186
General medicine.....	103	51	154
Neurologic surgery.....	4	4	8
Obstetrics and gynecology....	56	62	118
Ophthalmology.....	17	25	42
Orthopedic surgery.....	7	17	24
Otolaryngology.....	14	27	41
Pathology.....	5	11	16
Pediatrics.....	16	18	34
Plastic surgery.....	0	1	1
Psychiatry and neurology....	17	20	37
Public health.....	2	3	5
Radiology.....	8	13	21
Surgery.....	86	154	240
Urology.....	3	13	16
Total.....	452	518	970

This report is based on early returns from a pilot questionnaire and should be considered a preliminary statement. As further replies are received, they will be analyzed and published.

EXPANDING FIELDS IN MEDICINE AND MEDICAL EDUCATION

Wartime experiences in medical care for the armed forces and for civilians have accentuated the growing importance of certain fields in medicine, including neuropsychiatry, public health, industrial health, physical medicine and tropical medicine. The place of these expanding fields of modern medicine in undergraduate and graduate medical education is discussed in the following papers:

NEUROPSYCHIATRY

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Psychiatry has reached another crossroad in its evolution. Whether it maneuvers its way through the traffic will depend not alone on psychiatrists but on all organized medicine. It is no mere figure of speech to say that we are experiencing a worldwide psychosis. If we include in the concept of health the mental status of an individual, never in the world's history have we had such an unhealthy state. Just as the widespread serious epidemic of a serious disease commands the attention of all organized medicine, so should the present advanced mental disease of the world arrest the interest of all organized medicine. It should demand our attention to direct an attack on the causes, an understanding of the symptomatology, immediate measures of treatment and ultimately the prevention of a recurrence.

The war situation has developed the need for and the unlimited opportunities open to psychiatry. At every turn in the selection and training of our huge army, we are confronted with psychiatric problems. As we wage the war, more develop, and as our soldiers and sailors return, we shall meet still more. Already we have discovered acute needs for psychiatric knowledge

and practice. First, in our efforts to form this army we have observed at the selection level that there is an alarmingly high frequency of personality deviates in our civilian population, and a considerable number of men have been regarded as unfit to be fighting men in the Army. A second observation has been in our army hospitals, where we have had many psychiatric disorders, a majority of which are manifest as physical complaints. They are, in part, the result of the tough adjustment required plus the additional factor that a man in the Army does not have the opportunity or privilege of managing his life as he did as a civilian. In the Army, if he becomes distressed, whether it be overtly manifest in his emotions or disguised through his stomach, he becomes a patient in the hospital. A third observation has been the fact that combat conditions may make any normal man into a psychiatric casualty.

These observations and their implications in our large army confront us with the realization that the needs of psychiatry are greater than they have ever been. This does not necessarily mean that the incidence of psychiatric disorder is greater than it has been, but the job at hand compels us to face the situation and deal with it. On the other hand, many of these same borderline individuals in civilian life were not conspicuous. In many instances these problems were not assumed to be of medical concern. Because a man could apparently function in his civilian life, he did not demand our attention. We can be sure however that, like invisible taxes, this state of affairs cost us heavily. When we set about to form a fighting army we aggressively sought every man who could do a hard, exacting job—a job that required every man to be in first class condition. Then we subjected him to a task which in itself has proved that it can break the best integrated

individual. The total experience has forced us to become more acutely conscious of the psychiatric needs that obviously exist in our civilian population; our army hospital experience has forced on us in vivid fashion the recognition of the fluidity between the psyche and the soma when a man is placed under great pressure.

Psychiatric Manpower.—There are approximately 150,000 physicians in the United States. There are approximately 3,000 members of the American Psychiatric Association, which will include 90 per cent of the qualified men in this field. In the Army there is roughly 28 per cent of the membership of the American Psychiatric Association, with a considerable number of other medical officers less well trained and less experienced who nevertheless are functioning in the field of neuropsychiatry. Although no figures can be given, it is obvious that the number available is far out of proportion to the amount of work that needs to be done. As the Surgeon General, Norman T. Kirk,¹ has said, roughly 50 per cent of all civilian patients of all doctors are suffering from physical ailments growing out of emotional disturbances. Furthermore, psychiatrists belong to the scarcest category of medical specialists, both within the Army and in civilian life.

Obviously, there never will be enough psychiatrists if only specialists in this field attempt to deal with all psychiatric problems. The only solution lies in the better training and education of all physicians in the field of personality disorders, their recognition, their manifestations, their scientific treatment and their prevention. The distressing fact remains that, to date, the average physician is not equipped for this function. We see this manifested in both his attitude and his practice, and it makes little difference if our observation is made of the physician in civilian practice, in the army dispensary, in a gastrointestinal clinic, in the army hospital cardiovascular ward or in the private office. The attitude varies somewhat, depending on the physician's relationship to the patient, and there is considerable contrast in the environmental situation in civilian practice and in army practice. The attitudes assumed by the physician toward the neuropsychiatric patient are a direct reflection of his understanding and his skill in this field. Fortunately, many such patients receive excellent medical care. On the other hand, too often the patient with functional complaints is diagnosed only by the exclusion of organic difficulties. He is often subjected to indiscriminate and prolonged hospitalization with frequent laboratory testing and x-rays and occasionally he may even have an unnecessary operation or, if the operation is elective, he ends up in a worse state than before the operation. He may be treated with indifference or accused of malingering or given merely symptomatic treatment. Not infrequently he is told that nothing is the matter with him. Unfortunately, he is occasionally aggressively scolded or punished. It is an unpleasant fact for all of us in American medicine to face, and particularly medical educators, that the average physician does not understand or know how to treat minor (or major) personality disorders. He too often fails to recognize them as medical problems.

The obvious conclusion about this situation indicates, first, that the average physician has had insufficient training in our medical schools to understand the personality and its deviations. We have made great

strides in the improvement of our teaching of psychiatry in medical schools, as Ebaugh has outlined,² but it is still far short of the need.

Secondly, it must be assumed that there is an essential basic need that all physicians should know how to treat minor psychiatric problems. It is not presumed that they should or could handle major psychiatric problems any more than they may be expected to do major surgery. Their practices and attitudes, however, indicate without question that many are not competent to handle the minor psychiatry in their own practice.

Future Planning.—It is our experience as the direct result of the war, and more specifically our experience in the Army, that the physician, particularly the general practitioner of medicine, must have a more practical knowledge of psychiatry than he has heretofore received. This can be accomplished only through changes in our system of medical education. These changes must affect not only the educational plan for the medical student but also postgraduate education. The facts overwhelmingly point to the necessity of placing psychiatry as a basic medical subject. By so doing, this would not eliminate specialists of the field, as there is an urgent need for many more specialists. On the other hand, the universality of emotions, of feelings, and their effect on the human body make it imperative that every individual practicing medicine be as firmly grounded in the field as he is in the other basic medical subjects.

For the benefit of the great number of physicians now in practice, there is little doubt that many of them would welcome an opportunity for a short orientation course in psychiatry as related to general medicine and surgery. The experience in the Army undoubtedly will add very greatly to the number of men who desire such an opportunity. At present, very few opportunities for such training are available. Furthermore, it is highly desirable that such courses deal with the emotional factors in the general medical and surgical patients and with little or no attention paid to the problems of major psychiatry, particularly the psychoses.

The undergraduate course in psychiatry should be entirely overhauled with considerable less emphasis on the psychotic illnesses and much more emphasis placed on those fields of medicine and surgery in which the symptoms of functional illness are most frequently encountered. Our teaching methods of the past have all too often led the students to assume that psychiatry was only a specialty and they graduated failing to recognize that the knowledge and technics of this field would and should apply in every patient.

As medicine becomes more of a social science and involves the assistance of research workers, of laymen assistants, of nurses and for us in the Army, our tremendously important Medical Administrative Corps, we must recognize that these individuals should have a much closer contact in medicine from an earlier period in education than they do. In psychiatry it is highly important, whether we practice in an outpatient clinic or in a hospital, that we have the help of the clinical psychologist and of the psychiatric social worker. It is to be hoped that sometime our medical schools can become sufficiently universities to include in their training these intimate associates and assistants of the physician.

Not only should the course in psychiatry be greatly changed, but the whole medical course might very

1 Kirk, N. T.: Bull. U. S. Army M. Dept., July 1944, No. 78, p. 40.

2 Ebaugh, Franklin G., and Rymer, Charles C.: *Psychiatry and Medical Education*, Commonwealth Fund, 1942.

advisably point to a reorientation of the importance of the personality factors in disease. In every medical course we start the student in devoting hours, weeks and months in the dissection of the human body. We follow it with excellent courses in the physiology and the chemistry of this body. We are commendably grounded in the physical pathology of this body. Nevertheless we suffer in our system of medical education by so much emphasis on the material that the average medical student receives his diploma with only the vaguest conception that the most important part of his patient is the person who lives within the framework of the body. He leaves with slight, if any, idea that it is our ambitions and our strivings, our loves and our hates, our successes and our failures, our aggressivity and our passivity, that are probably the major determinants in the maintenance of health. This cannot be taught only in the course on psychiatry, it must be taught in medicine and in surgery and in every specialized field.

Last, but not least, is the opportunity, the responsibility of medical education to provide the leadership in reorientation regarding concepts of mental health. No field of medicine battles against such a welter of superstitions and misconceptions regarding its patients and its methods as does psychiatry. Unfortunately, our greatest lack of understanding and most frequent source of misunderstanding lies in the medical profession itself. Again, it may be in our system of medical education; it may be in the historical evolution of psychiatry from the period of werewolves and dungeons; it may be in the incomprehensible jargon of some psychiatrists; it may be, in part, the intangible nature of the subject in contrast to operative technics, stethoscopes and x-rays; it may be of a presumed necessity to defend our individual and naive belief that each of us is a "normal" personality; whatever the causes, the fact remains that the physicians' bungling of psychologic factors keep thousands of cults thriving. Because he is the physician, and thus the authoritative source of opinion for the layman, his attitude and understanding of psychiatry can and do color the public attitude. Even though progress has been made, the public conception is still a blurred picture of disgrace and fear, mysticism and self exemption. Is it too much to hope that the medical profession might take a more forceful initiative to gain enlightenment and disseminate it? It is fundamentally a challenge to medical education.

PUBLIC HEALTH

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The field of public health, broadly considered, comprehends all health activities for which public responsibility has been assumed. Thus, it includes not only such traditional activities as sanitation and communicable disease control but also such functions as school health service, maternal and child health programs, medical care for the needy, care of the mentally ill and many services which are provided by other agencies, governmental or voluntary. Public action in the health field has been increasing at an accelerated rate in recent years, but medical education has by and large continued to prepare students for individual private practice with little regard for the changing scene. The greatest single problem now before our medical schools is to give their students new attitudes, information

and technics which increasing public action will demand of them.

In general, expansion in public health is taking two forms: first, growth in the number and size of the health services conducted or supervised by governmental agencies and in which both clinical and administrative positions await trained medical personnel; and, second, increased tax support for services which are largely provided by private practitioners and hospitals. An example of the first is the care of sick or disabled veterans in the facilities of the Veterans Administration and of merchant seamen by the Public Health Service, a vast enlargement of which is occasioned by the war. In the second group fall the Emergency Maternity and Infant Care program for the wives and infants of servicemen and the physical restoration of the civilian handicapped under the Barden-LaFollette act. Often, as in the care of the needy and medically needy, a combination of directly operated public hospitals and of tax payments to private sources is found.

There are numerous other instances of both types of public activity, some initiated during the war, others old and well established but stimulated to further growth by the emergency. All, however, will affect the future pattern of our health services. Of the older public programs, none is more significant or more generally accepted than the development of state and local public health services. Of the 3,070 counties of the United States, only about 1,800 have some form of full time health service. The House of Delegates of the American Medical Association, in company with many other groups, urged in 1942 the establishment of full time public health services throughout the country. In the past session, June 1944, the House again emphasized the need for expanding these services and for training qualified personnel. Health departments may be faced with increased responsibilities if tropical diseases are introduced into this country in serious proportions by returning servicemen.

The federal-state venereal disease control program is another well established activity that has grown enormously with the war and with the advent of newer, more rapid methods of treatment. The venereal diseases may be virtually eradicated if the use of these new treatment methods is extended when peace comes. Governmental agencies have also long been active in industrial hygiene, workmen's compensation, dental hygiene, control of cancer and the care of crippled children. Industrial hygiene in particular has received emphasis in connection with war production, and more thought is being given to the desirability of greater public responsibility for treatment of industrial diseases in addition to the traditional responsibilities of research and prevention.

The experience of Selective Service and of the armed forces with psychoneurotic and other emotional disturbances furnishes a powerful impetus for advances in mental hygiene and psychiatric treatment. Already there is a vigorous voluntary movement for increasing research and training in this field, for enlarging the number and size and for improving the quality of our services and facilities for mental hygiene and psychiatry. There can be little doubt that important public action will follow.

The depression of the thirties brought virtually complete acceptance by the public and by the medical professions of governmental responsibility for the medical care of the needy and the medically needy. This function has venerable Anglo-Saxon tradition behind

it, but its systematic organization on a nationwide scale, with some (though limited) aid from federal funds, is quite different from the local "doctor to the poor" of the past. Much of the best of this work has been carried out by public welfare agencies, but these activities should nevertheless be included in any comprehensive definition of "public health."

Care for the inhabitants of rural areas is becoming recognized as a service which cannot be satisfactorily provided, in many instances, without government aid. The Farm Foundation, for example, has developed cooperative health and medical service in Nebraska, with state assistance. The nationwide efforts of the Farm Security Administration and the War Food Administration have attained notable success and have been marked by sustained cooperation from the practicing profession. Farm organizations have long indicated a desire to see such efforts enlarged in scope and amount.

Public responsibility, in addition to its older functions, has been accepted or is being seriously considered for a number of new activities. The most recent is the passage by Congress late in June of an act authorizing the appropriation annually of funds (\$10,000,000 in 1945) to be used by the Public Health Service in the control of tuberculosis, including grants-in-aid to the states and other political subdivisions. Recently a committee of distinguished cardiologists recommended a similar federal-state program for the control of rheumatic fever. The revelation of large numbers of preventable and curative defects in Selective Service registrants may well result in widespread strengthening of our school health services and in increased public responsibility for the early correction of defects found in school children.

A growth of official or tax supported programs for the control and treatment of noncommunicable diseases of major importance may also be expected. The reduction of communicable disease and the aging of the population have resulted in an increased amount of chronic illness and dependency. Public action has already been taken in some areas toward improving and enlarging facilities for the treatment of patients with chronic conditions, but the problem is nationwide and will be dealt with on a far wider scale than heretofore. It seems likely too that the benefits of physical medicine will be made more widely available through public action if the studies of the Baruch Committee indicate the need.

Finally, there is a rapidly growing public interest in organized methods for prevention and treatment of sickness of all types and paying for its costs. Most efforts in this field have been under voluntary or private auspices, but they are by their very nature community, rather than individual, activities. Indeed, the city governments of San Francisco and New York have already taken active steps to secure organized services for their employees. Whether or not governmental participation increases in developing group medical practice and insurance against the costs of sickness, the vigorous support of labor, industry, agriculture and many medical and hospital groups assures important future developments.

This list of public activities in health is impressive, yet it is far from complete. These activities are increasing in both scope and number. Some require physicians in public office, more require the time and effort of private practitioners in providing services. The problem facing medical education is to train physicians for

intelligent participation in public health activities. Up to now, doctors have been content to ignore these programs or to oppose them, or to consider the services they render under them as a kind of charity.

This is not only unrealistic, it is dangerous. Many public health programs fail to live up to the best in medicine because the best physicians fail to participate. The public demands expansion of these programs, nonetheless, and they will constitute an ever larger proportion of all medical work. If their standards are less than the best, they threaten all professional standards.

It is time that medical students learned the facts of life. They should be fully aware that public health, in the broadest sense, will occupy much of their time and effort, whatever they may choose to do. They should be stimulated to see these activities not as something to be avoided or as a threat to private practice but as an intrinsic and challenging part of their everyday work. They should realize that publicly sponsored health functions will demand and should be given the best of their skill and enthusiasm. Only if the new graduate comes out eager to join with the public in action for health can we hope for the kind of constructive action that will, for the future, guarantee high quality in medicine, professional and economic opportunity for physicians, and good health for the nation.

INDUSTRIAL HEALTH

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Chairman, Committee on Education, Council on Industrial Health
American Medical Association

AND

Carl M. Peterson, M.D.

Secretary, Council on Industrial Health

Wage earners are numerically and economically the most important single constituent in our population. It follows that industrial health should be the most important element in the public health. The Council on Industrial Health believes that industry, regardless of size, should have certain health services available to it. These are defined as follows:

1. A competent physician who takes genuine interest in applying the principles of preventive medicine and hygiene to employed groups and who is willing to devote regular hours to such service in the working environment.
2. Industrial nurses with proper preparation, acting under the physician's immediate supervision or under standing orders developed by him or by the committee on industrial health of the county medical society.
3. Industrial hygiene service directed at improvement of working environment and control of all unhealthful exposures, to be provided by physicians and others with guidance and assistance from the specialized personnel in state and local bureaus of industrial hygiene.
4. A health program which should include:
 - (a) Prompt and dependable first aid, emergency and subsequent medical and surgical care for all industrially induced disability.
 - (b) Health conservation of employees through physical supervision and health education.
 - (c) Close correlation with family physicians and other community health agencies for early and proper management of nonoccupational sickness and injury.
 - (d) Good records of all causes of absence from work as a guide to the establishment of preventive measures.

Widespread application of these services, suitably adjusted to community medical and health facilities, would enhance the well-being of millions of workers.

and contribute greatly to the productive capacity of the country.

If industrial health is to expand and improve according to this general pattern, support must be assured from several influential quarters. The war, by reason of its insatiable demands on industry and industrial manpower, has in fact enlarged our concept of the industrial physician's functions from practical necessity to limitless opportunity. There are signs that support will be continued and augmented in the postwar years from the following sources:

1. The government. Governmental interest is represented by an unbroken trend toward liberalized procedure, greater coverage and increased benefits under workmen's compensation and social security. Each year new sanitary, safety and health codes are developed for enforcement by federal, state and local agencies. Bureaus of industrial hygiene have steadily improved their facilities for investigation of working conditions and for consultation with management and physicians.

2. Management. The successful performance of existing industrial medical departments strongly suggests that an acceptable formula can be developed jointly by industry and medicine which will bring qualified physicians regularly and directly into the work place. Once agreed on, the value of the formula must be demonstrated to industry both small and large. To this educational service the trade associations and manufacturing and commercial groups are already committed. It is only under this kind of organization that individual physicians can bring to individual plants widespread application of the great store of clinical and technical information already available in sufficient quantity to make every occupation a safe and healthful one.

3. Labor. Industrial health is here to stay as a factor in collective bargaining. The appearance of health and safety clauses in employment contracts, its advocacy of health and hospital insurance coverage, participation in case finding surveys and willingness in certain areas to support its own industrial hygiene services are indications of labor's rapidly mounting interest.

4. Medicine. Initiative and guidance in this expanding field must be assumed by the medical profession if high standards of accomplishment and conduct are to prevail. Progress in this direction is being made. Nearly every sizable industrial community has a committee on industrial health in its medical society, all the members of which are prepared to cooperate with other community interests to improve industrial health. The specialty groups likewise are beginning to realize that help from them is essential if many unhealthful and unhygienic problems are to be solved, and that industry also offers unparalleled opportunities for clinical investigation and observation. These activities augment, of course, the services of individual physicians already employed full or part time in industry.

Educational Requirements.—These developments, representative of improved integration between medicine and other affected groups, must be accompanied by improved opportunities for training. It is still largely true, in spite of recent advances, that industrial medicine, hygiene and health administration are commonly taught without real insight into industry's and the workers' needs and their relation to medical and health facilities in the community at large. There is a tendency to resolve the whole problem of medical service in industry by regarding it as general practice in a

plant. Most experienced industrial physicians would disagree. Industry's paramount need for the prevention of injury and disease with the resultant details of medical and engineering control over the worker and his environment are the factors which distinguish industrial health from conventional medical practice. Much as industrial health owes to every other medical discipline, its real future lies in the domain of preventive medicine and public health. It is in this direction that its essential characteristics as a recognized specialty are likely to occur.

The appointment of a committee representing the Council on Industrial Health and the Council on Medical Education and Hospitals is a step in the direction of orderly definition of the problem and its practical solution. A beginning has already been made.¹ It is hoped that through this means:

1. Every medical graduate will obtain reasonable grounding in the fundamentals of industrial medicine and surgery, industrial hygiene and toxicology, and industrial health administration.

2. Every encouragement will be given to promote introductory, refresher and continuation courses for practicing physicians under sponsorship of medical societies and medical schools.

3. The value of industrial experience during the internship can be investigated.

4. A program of graduate training can be evolved in conformity with existing standards for certification, using the residency and fellowship methods which characterize extended study in other clinical fields.

5. Coordinated training of physicians and engineers for industrial health service can be developed, preferably in schools of public health or institutes of industrial health.

6. Standards for the training and employment of technical assistants can be elaborated.

Medicine has much to offer industry. Its opportunities should not be hampered by lack of imagination or leadership.

PHYSICAL MEDICINE

The timely and informative report on physical medicine by Frank H. Krusen, M.D., Director, Baruch Committee on Physical Medicine, appears on pages 1093 to 1097 of this issue as an integral part of the Educational Number. It will be included in the reprint edition.

TROPICAL MEDICINE

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Since the onset of the present war there probably has been no phase of medical education which has expanded more than that of tropical diseases. In the years preceding Dec. 7, 1941 the teaching of tropical medicine was not one of major interest, although it was rapidly gaining in importance and recognition. Also little effort was being expended at that time to supply students with adequate knowledge or opportunities for investigation of tropical and parasitic diseases. There were a few fortunate medical schools with far sighted leaders who realized the necessity of developing this field, but in most places the burden was carried by the zoologist or the parasitologist or divided between many departments and attracted little interest except to those few, chiefly nonmedical, students who planned a career of teaching or research. By the time the medical student

1. The Teaching of Industrial Health, J. A. M. A. 118:731 (Feb. 28) 1942.

TABLE I—Admission and Graduation Calendars of Medical Schools in the United States

School	Session for Which Data Are Given in This Educational Number		Present Session Began	Dates of Next Two Entering Classes		Dates of Next Two Graduating Classes	
	Freshman Session Began (1944)	Date of Graduation		Freshman Session Began	Date of Graduation	Freshman Session Began	Date of Graduation
ARKANSAS							
University of Arkansas School of Medicine	7 24	3 27 44	4 3 44	1 2 45	10 1 45	12 18 44	9 14 45
CALIFORNIA							
University of California School of Medicine	9 15 43	10 2 43	11 1 43	6 10 44	3 1 45	10 21 44	6 4 45
Stanford University School of Medicine	7 14	1 2 44	3 1 44	12 2 44	10 7 44	6 1 44	7 1 44
COLORADO							
University of Colorado School of Medicine	6 17 43	1 14 44	4 10 44	1 8 45	9 45	10 13 44	7 8 45
CONNECTICUT							
Yale University School of Medicine	3 29 43	12 21 43	1 3 44	10 2 44	7 1 45	9 19 44	6 4 45
DISTRICT OF COLUMBIA							
Georgetown University School of Medicine	15 43	12 18 43	1 3 44	10 9 44	7 6 45	9 16 44	6 16 44
George Washington University School of Medicine	3 1 43	11 17 43	11 2 44	9 18 44	6 45 44	9 19 44	6 4 45
Howard University College of Medicine	6 12 43	3 17 44	3 20 44	12 28 44	9 45	12 22 44	9 7 45
GEORGIA							
Emory University School of Medicine	3 2 43	12 20 43	1 3 44	10 2 44	7 2 45	9 16 44	6 4 45
University of Georgia School of Medicine	4 7 43	12 20 43	1 3 44	9 27 44	7 2 45	9 11 44	6 11 44
ILLINOIS							
Loyola University School of Medicine	4 19 43	12 18 43	1 10 44	10 2 44	7 4 45	9 2 44	6 7 44
Northwestern University Medical School	3 29 43	12 18 43	12 28 43	9 27 44	9 45	9 11 44	6 1 44
University of Chicago, The School of Medicine	3 24 43	12 17 43	1 3 44	9 20 44	6 20 45	9 8 44	6 1 44
University of Illinois College of Medicine	6 25 43	12 17 43	4 3 44	1 2 45	10 1 45	12 10 44	9 11 44
INDIANA							
Indiana University School of Medicine	1 7 43	8 22 43	9 1 44	1 1 45	9 4 45	12 2 44	8 4 44
IOWA							
State University of Iowa College of Medicine	9 1 43	12 22 43	1 3 44	10 7 44	9 4 45	9 23 44	6 16 44
KANSAS							
University of Kansas School of Medicine	9 24 43	1 31 44	3 6 44	10 20 44	9 20 45	10 9 44	8 1 44
KENTUCKY							
University of Louisville School of Medicine	4 1 43	12 20 43	1 3 44	9 27 44	7 5 45	9 8 44	6 1 44
LOUISIANA							
Louisiana State University School of Medicine	1 11 43	12 20 43	1 11 44	9 27 44	9 13 45	9 6 44	6 1 44
Louisiana University of Louisiana School of Medicine	7 1 43	2 12 44	3 1 44	12 1 44	9 1 45	10 14 44	8 1 44
MARYLAND							
Johns Hopkins University School of Medicine	3 1 43	11 20 43	11 29 43	9 7 44	9 14 45	8 15 44	6 14 44
University of Maryland	4 8 43	12 21 43	1 13 44	10 17 44	7 24 45	9 29 44	6 24 44
MASSACHUSETTS							
Boston University School of Medicine	9 31 43	12 21 43	12 31 43	9 20 44	6 29 45	9 22 44	6 22 44
Harvard Medical School	1 8 43	12 20 43	1 3 44	10 2 44	7 9 45	9 20 44	6 20 44
Tufts College Medical School	4 7 43	12 10 43	1 3 44	10 2 44	6 4 45	9 4 44	6 4 44
MICHIGAN							
University of Michigan Medical School	11 1 43	10 16 43	11 1 43	10 30 44	10 9 45	7 23 44	9 1 44
Wayne University College of Medicine	4 3 43	12 9 43	2 3 44	10 2 44	7 2 45	9 28 44	6 28 44
MINNESOTA							
University of Minnesota Medical School	3 13 43	12 16 43	1 4 44	10 2 44	6 4 45	8 26 44	6 4 44
MISSOURI							
St. Louis University School of Medicine	2 29 43	11 19 43	11 22 43	8 28 44	6 4 45	9 21 44	6 10 44
Washington University School of Medicine	3 19 43	12 12 43	1 3 44	10 2 44	10 15 44	9 12 44	6 7 44
NEBRASKA							
Creighton University School of Medicine	1 18 43	12 20 43	1 4 44	9 28 44	7 6 45	9 22 44	6 4 44
University of Nebraska College of Medicine	3 26 43	12 18 43	1 3 44	10 2 44	6 20 45	9 23 44	6 10 44
NEW YORK							
Albany Medical College	3 29 43	12 21 43	1 4 44	10 2 44	7 1 45	9 23 44	6 1 44
Long Island College of Medicine	9 29 43	12 30 43	1 3 44	10 2 44	10 1 45	9 28 44	6 28 44
University of Buffalo School of Medicine	7 6 43	12 29 43	1 3 44	1 2 45	9 4 45	9 4 44	6 4 44
Columbia University College of Physicians and Surgeons	3 22 43	12 23 43	1 3 44	10 7 44	10 4 45	9 28 44	6 1 44
Cornell University College of Medicine	4 5 43	12 23 43	1 3 44	9 28 44	10 1 45	9 16 44	6 16 44
New York University School of Medicine	2 29 43	12 20 43	1 3 44	10 2 44	7 1 45	9 28 44	6 1 44
New York University School of Medicine	4 5 43	12 23 43	1 3 44	10 4 44	7 4 45	9 28 44	6 1 44
University of Rochester School of Medicine	12 2 43	12 18 43	1 3 44	10 2 44	10 1 45	9 2 44	6 1 44
Syracuse University College of Medicine	7 6 43	12 21 43	1 4 44	1 4 45	10 1 45	9 4 44	6 4 44
OHIO							
Duke University School of Medicine	4 1 43	12 20 43	1 3 44	10 2 44	7 2 45	9 20 44	6 4 44
Bowman Gray School of Medicine	12 43	12 20 43	1 3 44	9 27 44	9 20 45	9 7 44	6 10 44
OKLAHOMA							
University of Oklahoma School of Medicine	3 22 43	12 2 43	12 13 43	9 5 44	6 4 45	8 20 44	6 4 44
University of Oklahoma School of Medicine	3 1 43	10 25 43	11 22 43	8 28 44	6 20 45	9 20 44	6 1 44
University of Oklahoma School of Medicine	9 30 43	12 13 43	1 4 44	10 3 44	6 1 45	9 1 44	6 11 44
OREGON							
University of Oregon School of Medicine	5 10 43	12 13 43	1 5 44	9 20 44	6 20 45	9 15 44	6 1 44
UTAH							
University of Utah School of Medicine	3 29 43	12 22 43	1 4 44	10 2 44	7 2 45	9 21 44	6 21 44
VERMONT							
University of Vermont College of Medicine	4 5 43	12 23 43	1 3 44	10 2 44	10 1 45	9 14 44	6 4 44
VIRGINIA							
University of Virginia School of Medicine	4 1 43	12 16 43	1 3 44	10 2 44	7 2 45	9 28 44	6 1 44
University of Virginia School of Medicine	4 5 43	12 23 43	1 3 44	10 4 44	7 4 45	9 28 44	6 1 44
University of Virginia School of Medicine	12 2 43	12 18 43	1 3 44	10 2 44	10 1 45	9 2 44	6 1 44
WISCONSIN							
University of Wisconsin School of Medicine	7 1 43	11 20 43	4 1 44	1 1 45	9 22 45	6 22 44	6 1 44
Marquette University School of Medicine	9 1 43	10 1 43	11 1 43	7 29 44	5 7 45	6 27 44	6 1 44

1 Admission date may be changed (a) to Nov. 1, 1945; (b) to September 1, 1945; (c) to October 1, 1945; (d) indefinite; (e) tentative.
 2 Also September 1943 and March 1944. 3 Also December 1943 and March 1944. 4 Also June 1943 and September 1944.
 and December 1944 and 1945.

In February the Army curtailed the A. S. T. P. and has since renegotiated its contracts with medical schools to provide 28 per cent instead of 55 per cent of 1945 entering classes.

This increases to 47 per cent the numbers which must be obtained from civilian sources.

In April the Selective Service system abolished further occupational deferments of premedical and medical students not enrolled in medical schools by July 1, 1944. To meet this deadline fifty-six medical and basic science schools admitted a total of 1,675 civilian students to the freshman class somewhat earlier than the normal admission date.

Only nine schools thought they might be able to fill 47 per cent of their freshman places from civilian sources with no Selective Service deferments. Fifty-seven schools estimated reductions of from 10 to over 40 per cent in freshmen enrolments. There was an average reduction of 23 per cent for the sixty-six schools venturing estimates. The remaining schools were unwilling or unable to estimate the reduction that will occur.

"2. Those who do not have a letter of acceptance to an accredited medical school, for entrance by Dec. 31, 1944. These men will be continued on active duty, and will not be eligible for ASTP medical training."

There will be no further new assignments to the premedical A. S. T. program. As a result medical schools will have to select 75 per cent of their 1946 freshmen from civilians. This is manifestly impossible, and it is probable that entering classes in 1946 will be approximately half filled unless the Enlisted Reserve Corps are reinstituted or Selective Service regulations changed.

No change is contemplated in the Navy V-12 premedical or medical programs, except that the Navy's quota of medical students may be increased from 25 per cent to 31 per cent.

Should no adjustment be made to correct the present situation, a considerable reduction of graduates after the war will ensue. Although schools will continue the accelerated program, they will probably admit classes only once annually instead of every nine months. This of itself will reduce the number of graduates from the

TABLE 2.—Admission and Graduation Calendars of Medical Schools in Canada

School	Session for Which Data Are Given in This Educational Number		Dates of Next Two Entering Classes		Dates of Next Two Graduating Classes	
	Freshman Session Began (1943)	Date of Graduation	"Present" Freshman Session Began			
CANADA						
University of Alberta Faculty of Medicine.....	9-27-43	9- 4-43	9-27-43	9-28-44	9-45	1-45
University of Manitoba Faculty of Medicine.....	8-21-43	5-12-44	8-21-43	9-11-44	9-45	5-17-45
Dalhousie University Faculty of Medicine.....	9-14-43	8-21-43	9-14-43	9-44	9-45	5-15-45
Queen's University Faculty of Medicine.....	9-27-43	7-28-43	9-27-43	9-25-44	9-24-45	2-45
University of Western Ontario Medical School.....	9-20-43	7-22-43	9-20-43	9- 3-44	9-45	5-45
University of Toronto Faculty of Medicine.....	9-28-43	7-30-43	9-28-43	9-26-44	9-25-45	2-45
McGill University Faculty of Medicine.....	9- 8-43	12-10-43	9- 8-43	9- 6-44	9- 5-45	7-31-45
University of Medicine.....	9- 7-43	11-30-43	9- 7-43	9-18-44	9-45	5-31-45
University of Medicine.....	9-15-43	9- 3-43	9-15-43	9-12-44	9- 7-45	8-44
School of Medical Sciences.....	10- 5-43	.....	10- 5-43	10- 4-44	9-28-45	.....

A final development has still further jeopardized medical education. The Army appropriation bill for the coming year, which was passed by Congress June 23, contains a provision which reads in part as follows:

Provided, That no appropriation contained in this Act shall be available for any expense incident to education of persons in medicine (including veterinary) or dentistry if any expense on account of this education in such subjects was not being defrayed out of appropriations for the military establishment for the fiscal year 1944 prior to June 7, 1944.

A release from the War Department dated Aug. 1, 1944 states the following regarding this provision:

"Those individuals now on active duty whose medical or premedical educational expenses were defrayed in whole or in part by the government under the ASTP program prior to June 7, 1944, will be continued in the medical program of the ASTP. Those on active duty whose medical or premedical training was not defrayed either in whole or in part under the ASTP program prior to June 7, 1944, and who for that reason cannot be continued in the training program, fall into two classes who will be disposed of as follows:

"1. Those who have letters of acceptance and who would have entered an accredited medical school by Dec. 31, 1944. An individual in this group may elect to be discharged from the Army shortly before the entrance date of the class for which he was accepted; or to be assigned to the Medical Department with no further ASTP medical training.

present annual average of 7,000 to 5,000. If classes can be only half filled, this number will be reduced to 2,500 graduates per year. Since 3,300 to 3,500

TABLE 3.—Admission Calendars of Schools of the Basic Medical Sciences in the United States

School	Session for Which Data Are Given in This Educational Number		Dates of Next Two Entering Classes for Freshmen	
	Freshman Session Began (1943)	"Present" Freshman Session Began		
University of Alabama School of Medicine.....	3-11-43	12- 6-43	9- 4-44	6- 4-45 ^(a)
University of Mississippi School of Medicine.....	2- 1-43	5-31-44	1-29-45	9-20-45
University of Missouri School of Medicine.....	3-22-43	12-27-43	9-10-44	6-23-45
Dartmouth Medical School.....	2- 7-43	10-31-43	7- 1-44	3- 1-45
University of North Carolina School of Medicine.....	3-22-43	12- 8-43	9-18-44	6-45 ^(a)
University of North Dakota School of Medicine.....	6-14-43	3-27-44	1- 2-44	9-21-45
University of South Dakota School of Medicine.....	3- 8-43	12-13-43	9-11-44	6-11-45
West Virginia University School of Medicine.....	3-22-43	12-27-43	9-25-44	6-25-45 ^(a)

1. Admission date may be changed (a) to September 1945; (b) indefinite.

physicians die each year, there will result an annual and cumulative deficit of 1,000 doctors a year.

Still further reductions in graduates and permanent damage to the "plant" of medical education will result from some schools being forced to close their doors

because of drastically curtailed enrolments. An unknown number of war casualties among medical officers will also reduce the supply of physicians.

These reductions in medical graduates will occur in the face of new and increased demands for medical services, mainly from the civilian population, the standing army and navy, the Veterans Administration and the liberated countries of Europe.

MEDICAL SCHOOL CALENDARS

In past years practically all schools admitted a class each fall and graduated a class each spring, with one academic session per calendar year. Educational data could be presented annually without confusion arising as to which class was being discussed. Local conditions varied and schools commenced the accelerated program at different times, so that admission and graduation dates now occur throughout the year, as shown in tables 1, 2 and 3. Even within a given school the various classes may have different dates for the commencement and the ending of the academic year. It becomes necessary to define clearly which session is being presented in the Educational Number. On Aug. 14, 1943 most of the data presented applied to the "session preceding the first class entering in 1943." Most of the data in the current issue will apply to the succeeding session, "the first session commencing in 1943." Some information will also be presented for the next succeeding session, which happens in each school to include the month of May 1944 and in most schools runs from approximately January 1944 to September 1944. We may refer to this as the "present session" for convenience. However, the term is not strictly correct because in some schools this session has already been completed.

THE MILITARY STATUS OF MEDICAL STUDENTS

Table 4 shows the distribution of medical students in all four classes in the United States in the categories of Army students, Navy students and others.

The figures given are for the "present" academic session, which for most schools runs from January 1944 to September 1944. Of the 23,782 medical students 20,990, or 88.3 per cent, are in Army and Navy programs. Except for 581 students in the Army reserves and 81 students in Naval reserves, all the "Army" students are in the A. S. T. P. and the "Navy" students in the V-12 program on active duty assigned to medical studies. There are no Army students in one school, and no Navy students in three schools.

For the same academic session, table 5 gives the military status of medical students in the United States by classes. In all classes 62.1 per cent were Army students, 26.2 per cent Navy, 6.6 per cent other men, mainly physically disqualified or deferred by Selective Service, and 5.1 per cent women. The composition of the freshman class was significantly different from that of the upper classes and medical students as a whole, with 47.2 per cent Army students, 35.3 per cent Navy students, 11.8 per cent other men and 5.7 per cent women.

Military restrictions and demands on Army students appear not to be excessive in most instances, but these are generally greater than on Navy students. Navy students are required to do little other than accomplish their major assignment to become competent physicians.

THE ACCELERATED PROGRAM

All medical and basic science schools in the United States are on the accelerated program with the exception of the Woman's Medical College of Pennsylvania, which is on the accelerated program for the junior and senior years only. The accelerated program must

TABLE 4.—Military Status of Medical Students in the United States, by Schools, May 1944

Name of School	Army	Navy	Others	Totals
University of Alabama.....	48	52	10	110
University for Arkansas.....	144	73	58	275
University of California.....	143	76	71	290
College of Medical Evangelists.....	238	23	96	357
University of Southern California.....	170	62	16	248
Stanford University.....	99	103	40	242
University of Colorado.....	144	51	33	230
Yale University (Connecticut).....	132	74	29	235
Georgetown Univ. (Dist. of Columbia).....	212	108	23	343
George Washington University.....	165	93	51	309
Howard University.....	217	0	54	271
Emory University (Georgia).....	153	95	3	251
University of Georgia.....	185	67	26	278
Loyola University (Illinois).....	171	86	60	317
Northwestern University.....	360	162	53	575
Univ. of Chicago, The School of Medicine.....	134	89	26	249
University of Illinois.....	405	168	107	680
Indiana University.....	323	79	35	437
State University of Iowa.....	199	85	30	314
University of Kansas.....	202	96	24	322
University of Louisville (Kentucky).....	259	85	14	358
Louisiana State University.....	218	91	37	346
Tulane.....	272	205	59	536
Johns H. " ".....	176	86	48	310
Univ. " ".....	258	88	32	378
Boston University (Massachusetts).....	174	55	22	251
Harvard Medical School.....	322	188	19	529
Tufts College Medical School.....	230	156	28	414
University of Michigan.....	206	125	85	416
Wayne University.....	174	68	37	279
University of Minnesota.....	307	135	51	493
University of Mississippi.....	31	29	5	65
University of Missouri.....	40	24	4	68
St. Louis University.....	356	121	27	504
Washington University.....	229	96	47	372
Creighton University (Nebraska).....	169	72	14	255
University of Nebraska.....	217	81	24	322
Dartmouth Med. School (New Hampshire).....	15	29	2	46
Albany Medical College (New York).....	97	49	29	175
Long Island College of Medicine.....	295	95	50	440
University of Buffalo.....	219	39	51	312
Columbia University.....	288	145	39	472
Cornell University.....	207	90	20	317
New York Medical College.....	241	106	65	412
New York University.....	368	103	47	518
University of Rochester.....	135	92	35	262
Syracuse University.....	122	53	25	200
University of North Carolina.....	35	55	7	97
Duke University.....	155	126	21	302
Bowman Gray School of Medicine.....	112	54	13	179
University of North Dakota.....	33	7	11	51
University of Cincinnati (Ohio).....	215	63	44	322
Western Reserve University.....	254	67	18	339
Ohio State University.....	229	42	27	298
University of Oklahoma.....	179	71	26	276
University of Oregon.....	209	53	23	285
Rahmann Med. Coll. (Pennsylvania).....	356	108	66	530
Jefferson Medical " ".....	428	145	17	590
Temple " ".....	287	141	47	475
Univ. " ".....	330	144	45	519
Woman's " ".....	0	0	143	143
Univ. " ".....	229	60	33	322
Medical College of South Carolina.....	129	51	7	190
University of South Dakota.....	21	14	12	47
University of Tennessee.....	378	94	145	617
Meharry Medical College.....	231	0	21	252
Vanderbilt University.....	149	43	13	205
Southwestern Medical College (Texas).....	219	34	49	302
Baylor University.....	83	76	31	190
University of Texas.....	198	141	52	391
University of Utah.....	103	36	26	165
University of Vermont.....	120	12	12	144
University of Virginia.....	154	99	24	277
Medical College of " ".....	178	130	26	334
West Virg. " ".....	38	12	9	59
Univ. " ".....	133	87	58	278
Marquette " ".....	210	122	17	349
Totals.....	14,762	6,228	2,792	23,782

necessarily continue for all schools except the Woman's Medical College, because they have Army and/or Navy contracts calling for acceleration. Whether or not acceleration will be continued after the war will depend on varying local conditions and on the experience of each school with the accelerated program. It is now almost impossible to evaluate the educational

effects of the accelerated program because of other important complicating variables, chief of which are the reduction in teaching staff, the many uncertainties in the minds of students and the admission of students every nine months, compelling depleted staffs to function almost continuously.

The accelerated program does not necessarily involve admissions every nine months. It can be conducted with annual admissions, as has been the case at the University of Michigan and the Woman's Medical College. Acceleration with annual admissions requires the admission of only the peacetime annual number of freshmen and produces only the prewar number of annual graduates. This plan also reduces the teaching load of the staff. If a school is on the quarter system, accelerating and admitting a new class every October, there will be no freshmen in school during the summer quarter, no sophomores in the spring, no juniors in the winter and no seniors in the autumn. It follows that a faculty member who teaches only freshmen will have no teaching duties in the summer. One who teaches only sophomores will be free from teaching in the spring, and so on. It would be highly desirable to continue the experiment of medical school acceleration under these somewhat more favorable conditions.

Many schools plan to return to annual admissions while still accelerating, commencing in the autumn of 1945. By that time a three year, four session cycle will have been completed, with the production of one extra class of graduates. The probable future shortage of qualified applicants has also influenced this contemplated change. Forty-five schools plan to return to annual admissions in 1945. Twenty-four schools are as yet uncertain of their plans; probably an appreciable number of these will also decide to change. Of the remaining eight schools, five now plan not to change, two have always had annual admissions and one will continue to admit classes quarterly.

In all Canadian schools acceleration has been discontinued. In most schools, this change became effective with the class entering in the autumn of 1943. Only upper classes, already embarked upon the program at that time, are continuing to accelerate. The reasons given for the return to the decelerated program are: 1, further additions to and replacements in the services will be adequately met under the new plan; 2, the 37 per cent depletion of the teaching staffs makes a continuation of acceleration difficult; 3, there was evidence of some deterioration of educational standards; and 4, there was evidence of deleterious effects on the health of students.

Seniors who commenced the accelerated program in July 1942 graduated in March 1943 and completed their nine month internship in December 1943. Several hundred of these are now in the armed forces. Without acceleration and the reduced internship they would not have become available for active military duty until July 1944.

Most schools graduated two classes during the calendar year 1943, about March and December. The former of these classes was reported on in the 1943 Educational Number. The current issue gives data (see "graduates," page 1119) on the latter class. Data on two additional classes will be available for the 1945 Educational Number. By that time four classes will have been graduated in three calendar years.

Between July 1, 1942, when acceleration started in most schools, and June 30, 1944 there were 10,357

medical graduates (see also table 14). Estimates of graduates in the ensuing eighteen months are shown in table 6. From July 1, 1944 to June 30, 1945 there will be approximately 9,844 graduates. The total graduates for the four session three year cycle is estimated at 20,201. This rate of production of physicians exceeds that at any previous times.

In table 7 are listed the estimated numbers of graduates from each medical school, by months, from July 1, 1944 to Dec. 31, 1945. This table will be particularly valuable to internship hospitals by providing information on the numbers of graduates from the various schools and the times they will become available for internships.

TABLE 5.—Military Status of Medical Students in the United States, by Classes, May 1944

	Army	Navy	Other Men	Women	Total
Freshmen.....	3,083	2,305	780	370	6,538
Sophomores.....	3,924	1,296	283	275	5,778
Juniors.....	4,012	1,347	232	284	5,875
Seniors.....	3,743	1,280	275	293	5,591
Totals.....	14,762	6,228	1,570	1,222	23,782

TABLE 6.—Distribution of Admission Dates by Schools and Estimated Number of Graduates for the Months July 1944 Through December 1945 in the United States; Schools of the Basic Medical Sciences Are Not Included

	Number of New Freshmen Classes Entering	Number of Graduates (Estimated)
1944		
July.....	1	113
August.....	2	291
September.....	19	3,914
October.....	31	343
November.....	1	15
December.....	4	572
1945		
January.....	8	29
February.....	0	0
March.....	1	45
April.....	0	0
May.....	2	0
June.....	11	4,522
July.....	21	272
August.....	0	317
September.....	16	598
October.....	12	0
November.....	1	0
December.....	0	41
Total.....		11,072

PREMEDICAL EDUCATION

The premedical Army Specialized Training and Navy V-12 programs meet the minimum admission requirements of all schools, in the cases of army and navy students assigned to medical schools. These programs also meet the minimum requirements for admission to an approved medical school as formulated by the Council on Medical Education and Hospitals.

Most schools desire also to publish admission requirements in terms of academic years or semester hours for civilian applicants. In tables 9 and 10 (pages 1116, 1117 and 1118) are given the civilian premedical requirements for each medical school in the United States and Canada. In 1945, 4 schools will require a degree or four years, 30 will require three years, 5 require two to three years, 45 only two years and (3) (Canadian) schools will admit students with one year of premedical work. As compared with the current year, in 1945 there will be 7 more schools requiring three years of premedical work, and 7 less that will accept two years or two to three years.

Deans have now had experience with selections of students for the A. S. T. and V-12 programs and are in a position to estimate the quality of medical students who will enter the study of medicine under these programs. Deans tend to be somewhat pessimistic. About one third (26) of the 72 deans expressing an opinion think that the quality of freshmen will be poorer than

very few or none of the entering freshmen would have been unable to obtain their premedical training without army and navy financial support. Thirty deans thought that 5 to 55 per cent of army and navy premedical students would have been unable to go to college as civilians paying their own way. The average for the thirty estimates was 21 per cent.

TABLE 7.—Estimated Number of Graduates of Medical Schools, July 1944 to December 1945

	1944						1945											
	July	Aug	S. pt	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
University of Arkansas, Little Rock.....						64									65			
College of Medical Evangelists, Los Angeles.....				11		2							93					
Stanford University, Stanford University.....				60									59					
University of California, San Francisco.....				62									73					
University of Southern California, Los Angeles.....				55									64					
University of Colorado, Denver.....				57									56					
Yale University, New Haven, Conn.....				44									61					
George Washington University, Washington, D. C.....				75									74					
Georgetown University, Washington, D. C.....				65									88					
Howard University, Washington, D. C.....						70									58			
Emory University, Atlanta, Ga.....				69									56					
University of Georgia, Augusta.....				63									68					
University of Illinois, Chicago.....				77									77					
University of Illinois, Chicago.....				121		16		10				120			10		10	
School of Medicine.....				51		6		5				45			5			5
University of Illinois, Chicago.....						167									120			
University of Illinois, Chicago.....						111									100			
State University of Iowa, Iowa City.....				72								83						
University of Kansas, Kansas City.....					86									80				
University of Louisville, Louisville, Ky.....				90									88					
Louisiana State University, New Orleans.....				79									81					
Tulane University, New Orleans.....					135										127			
Johns Hopkins University, Baltimore.....				75									81					
University of Maryland, Baltimore.....				96									88					
Boston University, Boston.....				54									68					
Harvard Medical School, Boston.....				136									142					
Tufts College Medical School, Boston.....				169									101					
University of Michigan, Ann Arbor.....	114														111			
Wayne University, Detroit.....				68									65					
University of Minnesota, Minneapolis.....	135												120					
St. Louis University, St. Louis.....				98									126					
Washington University, St. Louis.....				102									103					
Creighton University, Omaha.....				59									69					
University of Nebraska, Omaha.....				56									76					
University of New York, Albany, N. Y.....				39									41					
University of New York, New York City.....				123									115					
University of New York, New York City.....				77									77					
Long Island College of Medicine, Brooklyn.....				100									100					
New York Medical College, New York City.....				89									97					
New York University, New York City.....				132									127					
Syracuse University, Syracuse, N. Y.....				46									48					
University of Buffalo, Buffalo.....				70									74					
University of Rochester, Rochester, N. Y.....				63									65					
Duke University, Durham, N. C.....				69		3			3				68					
Bowman Gray School of Medicine, Winston-Salem, N. C.....				38									48					
Ohio State University,				67					1				77					
University of Oklahoma, Oklahoma City.....	81												86					
University of Oregon, Portland.....				73									87					
University of Oregon, Portland.....				56									72					
University of Oregon, Portland.....				66									71					
Hahnemann Medical College, Philadelphia.....				107									126					
Jefferson Medical College, Philadelphia.....				135									156					
Temple University, Philadelphia.....				111									128					
University of Pennsylvania, Philadelphia.....				153									153					
University of Pittsburgh, Pittsburgh.....				78									77					
Woman's Medical College, Philadelphia.....						29												
Medical College of South Carolina, Charleston.....				48									50					
Meharry Medical College, Nashville, Tenn.....						39							60		62			25
University of Tennessee, Memphis, Tenn.....				69		11		26					50		26			
Vanderbilt University, Nashville, Tenn.....				51									50					
Southwestern Medical College, Dallas, Texas.....						31									48			
Baylor University, Houston, Texas.....						15									112			
University of Texas, Galveston.....													42					
University of Utah, Salt Lake City.....				37									36					
University of Vermont, Burlington.....				32									101					
Medical College of Virginia, Richmond.....				76									65					
University of Virginia, Charlottesville.....				71											81			
Marquette University, Milwaukee.....				85														
University of Wisconsin, Madison.....				91									65					
Totals.....	114	291	3,014	343	15	572	29	0	17	0	0	1,522	2,22	317	598	0	0	11

formerly. About one half (34) think the students will be of about the same quality as before the war. Only one sixth (12) think incoming students will be better.

Since the ability to pay for a medical education is not a factor in the selection of men for premedical training under the army and navy program, it becomes important to know whether significant numbers of qualified men might now be enabled to enter medicine who could not do so formerly for financial reasons. Seventeen deans were unwilling or unable to express an opinion on this question. Twenty-nine thought that

It seems clear that no careful study of this problem has been made and the estimates cited are opinions. The real facts would be difficult to unearth.

LICENSURE UNDER THE ACCELERATED MEDICAL
SCHOOL PROGRAM, THE PREMEDICAL A. S. T.
AND NAVY V-12 PROGRAMS, AND THE
NINE MONTH INTERNSHIP

All states in the Union, as well as the District of Columbia, Alaska, Hawaii and Puerto Rico, have made certain adjustments in their licensure legislation or

practices, where such were required, to facilitate the licensure of graduates under the accelerated program, at least for the duration of the war. It now appears that these adjustments in certain states may not adequately meet the needs of those students who may spend a week or two less than thirty-six months in medical school. Such students are typical, because those starting school July 1, 1942, for example, are likely to graduate a week or so prior to July 1, 1945. Legislation in four states is such as might not provide for these students.

In Illinois the amended law reads ". . . the time elapsing between the beginning of the first year and the ending of the fourth year . . . (as regards) . . . students matriculating or entering upon such medical course during the years 1942, 1943 and 1944 . . . shall be not less than thirty-six months. . . ." A literal interpretation of this legislation would seem to bar the typical students, as well as students who may have entered the accelerated program in 1941 or will enter it in 1945 or later

TABLE 8—*Relationship of the Nine Month Internship to Licensure in All States Requiring an Internship*

Accepted as Fulfilling Internship Requirement	Additional Three Months in Civilian Hospital or Military Service Required	
	Will Give Examination at End of Nine Months	Will Not Give Examination Until Completion of Year's Service
Alaska	Alabama ¹	Illinois ²
Delaware	District of Columbia ¹	New Hampshire
Idaho	Iowa ¹	New Mexico
Michigan ¹	New Jersey ¹	
Montana ¹	North Dakota	
Nevada	Oklahoma ¹	
Pennsylvania ¹	Oregon ¹	
West Virginia	Puerto Rico	
Wyoming	Rhode Island ¹	
	South Dakota ¹	
	Utah ^{1,2}	
	Vermont ¹	
	Washington ¹	
	Wisconsin	

Hawaii, which requires an internship for licensure, has not reported on the relationship of this requirement to the shortened internship.

Some states require the internship of graduates of medical faculties abroad and reciprocity or endorsement applicants.

1. Will also give examination on completion of the medical course but withhold license until internship is completed.

2. Military medical service must be in a military hospital.

In the District of Columbia the law specifies "four graded courses of not less than nine months each." Under a literal interpretation of this law also, students finishing in thirty-five and a fraction months might encounter difficulties.

The Georgia law requiring forty-two months to elapse "between the beginning of the student's first course of medical lectures and the date of his graduation" has not been amended. However, the Georgia Board of Medical Examiners has advised in effect that graduates of accelerated medical courses could qualify for licensure.

The Minnesota law provides for "four entire sessions of not less than thirty-six weeks each." Difficulties may occur under this law, since it calls for 144 weeks of medical work. The thirty-five plus months of a typical curriculum includes 152 plus weeks. Vacation periods are thereby limited to a total of eight weeks during the three year course.

The information received from those states whose licensure laws include specific premedical requirements seems to indicate that there should be no licensure difficulties encountered by students whose premedical work was taken under the A. S. T. or the Navy V-12 or comparably accelerated civilian programs.

For those states requiring an internship, table 8 indicates the status of licensure legislation as regards the nine month internship. At least for the duration of the war eight states and Alaska will accept a nine month internship as fulfilling the internship requirement. Twelve states, the District of Columbia and Puerto Rico require an additional three months in a civilian hospital or military service and will withhold the license until this is completed but will permit applicants for licensure to write the examination on completion of the nine month internship. In three states physicians are not eligible to take the examination until after completion of a year's internship, three months of which may be in the military service. Officers seeking licenses in these three states must delay licensure until after the war or seek furloughs to take the examinations. In the past it has been possible for officers to obtain furloughs for this purpose. Four states specifically require the military medical service to be in a military hospital.

FACULTY MEMBERS IN WAR SERVICES

On July 1, 1944 the 77 medical schools and schools of basic medical sciences in the United States had contributed a total of 5,828 of its faculty members to the armed forces. This number is somewhat larger than the 5,637 of last year and is still in excess of 10 per cent of the medical officers in the armed forces. It seems apparent that medical schools have contributed approximately as large a proportion of their faculties to the armed forces as the proportion of physicians not engaged in academic work who have been commissioned.

This depletion of faculties continues to handicap the teaching of more medical students and in less time than in normal years. Further faculty reductions have resulted from increasing participation in war research and special war assignments. As contrasted with 130 civilian faculty members engaged in full time war work a year ago, there are now 211 so employed, from 23 medical schools in the United States.

This relatively small figure represents serious losses in teaching staff in some critical areas, since practically all these men were recruited from the full time faculty members mainly in the basic sciences. Furthermore, this figure includes only those on full time war research. The total loss in teaching manpower is much greater, since even larger numbers of teachers are devoting a considerable part, but not all, of their time to war research.

From the 10 schools in Canada, 265 faculty members are in military service and 18 are engaged in full time war work.

The loyalty and devotion of faculty members remaining to carry on the increased work of the medical schools under adverse conditions is to be highly commended. In the demobilization period, special consideration should be given to the preferential early release of physicians on medical school faculties, to restore the quality of medical instruction to a higher level as soon as possible.

DEVELOPMENTS IN MEDICAL EDUCATION

During the past year the Medical School of the Southwestern Medical Foundation, located at Dallas, Texas, has been added by the Council to the list of approved medical schools. Dr. Tinsley Harrison is dean of the faculties and Dr. Donald Slaughter is dean

TABLE 9.—Approved Medical Schools in the United States and Canada

Name and Location of School	1946 Pre-medical Requirement by Years#	Students by Classes, First Session Beginning in 1943					Graduates from July 1, 1943 to June 30, 1944	Executive Officer		
		1st Year	2d Year	3d Year	4th or 5th Year				Totals	
					Year	Year				
ARKANSAS										
1 University of Arkansas School of Medicine, Little Rock.....	60 sem. hrs. 79	74	69	60	...	...	279	60	Byron L. Robinson, M.D., Dean.....	1
CALIFORNIA										
2 University of California Medical School, Berkeley-San Francisco.....	3 72	75	69	69	...	...	282	65	Francis Scott Smyth, M.D., Dean.....	2
3 College of Medical Evangelists, Loma Linda-Los Angeles.....	3 97	91	72	75	67	...	333	67	Newton G. Evans, M.D., Dean, Loma Linda; W. F. Norwood, Ph.D., Asst. Dean, Los Angeles.....	3
4 University of Southern California School of Medicine, Los Angeles.....	90 sem. hrs. 65	65	54	54	49	...	293	49	Burrell O. Raulston, M.D., Dean.....	4
5 Stanford University School of Medicine, Stanford University-San Francisco.....	2 61	62	59	60	56	...	242	56	Loren Roscoe Chandler, M.D., Dean.....	5
6 University of Colorado School of Medicine, Denver.....	3 69	54	56	56	...	...	235	56	Maurice H. Rees, M.D., Dean.....	6
CONNECTICUT										
7 Yale University School of Medicine, New Haven.....	3 60	62	47	54	...	...	223	49	Francis G. Blake, M.D., Dean.....	7
DISTRICT OF COLUMBIA										
8 Georgetown University School of Medicine, Washington.....	2* 93	93	64	63	...	...	318	63	David V. McCauley, S.J., Ph.D., Dean.....	8
9 George Washington University School of Medicine, Washington.....	60 sem. hrs. 83	70	76	65	...	...	294	65	Walter A. Bloetorn, M.D., Dean.....	9
10 Howard University College of Medicine, Washington.....	2 77	61	70	49	...	...	257	48	John W. Lawlah, M.D., Dean.....	10
GEORGIA										
11 Emory University School of Medicine, Atlanta.....	90 sem. hrs. 69	60	60	60	50	...	239	50	Russell H. Oppenheimer, M.D., Dean.....	11
12 University of Georgia School of Medicine, Augusta.....	2 78	75	60	46	...	...	259	45	G. Lombard Kelly, M.D., Dean.....	12
ILLINOIS										
13 Loyola University School of Medicine, Chicago.....	60 sem. hrs. 88	80	77	67	...	...	312	70	Italo F. Volini, M.D., Dean.....	13
14 Northwestern University Medical School, Chicago.....	2 131	134	164	161	160	...	590	161	J. Roscoe Miller, M.D., Dean.....	14
15 University of Chicago, The School of Medicine.....	2 65	71	62	73	...	...	271	72	A. O. Bachmayer, M.D., Dean, Biophy. Division; F. J. Mullin, Ph.D., Assistant Dean of Students.....	15
16 University of Illinois College of Medicine, Chicago.....	2 171	175	168	162	...	...	676	161	Raymond B. Allen, M.D., Dean.....	16
INDIANA										
17 Indiana University School of Medicine, Bloomington-Indianapolis.....	3 130	124	119	133	...	...	506	124	Willis D. Gateh, M.D., Dean.....	17
IOWA										
18 State University of Iowa College of Medicine, Iowa City.....	3 80	88	76	64	...	...	317	64	Ewen Murchison MacEwen, M.D., Dean.....	18
KANSAS										
19 University of Kansas School of Medicine, Lawrence-Kansas City.....	3 & Degree 78	85	85	82	...	...	330	83	Harry R. Wahl, M.D., Dean.....	19
KENTUCKY										
20 University of Louisville School of Medicine, Louisville.....	2 96	80	89	89	...	...	363	83	John Walker Moore, M.D., Dean.....	20
LOUISIANA										
21 Louisiana State University School of Medicine, New Orleans.....	3 100	79	81	79	...	...	339	79	Beryl I. Burns, M.D., Dean.....	21
22 Tulane University of Louisiana School of Medicine, New Orleans.....	3 140	130	139	120	...	...	529	119	Hiram W. Kottmayer, M.D., Dean.....	22
MARYLAND										
23 Johns Hopkins University School of Medicine, Baltimore.....	2 75	74	73	73	...	...	295	69	Alan M. Chesney, M.D., Dean.....	23
24 University of Maryland School of Medicine and College of Phys. and Surg., Baltimore.....	2 102	83	96	90	...	...	371	90	Robert U. Patterson, M.D., Dean.....	24
MASSACHUSETTS										
25 Boston University School of Medicine, Boston.....	2 78	68	56	46	...	...	248	46	Charles F. Branch, M.D., Dean.....	25
26 Harvard Medical School, Boston.....	2 124	124	141	137	...	...	526	132	C. Sidney Burwell, M.D., Dean.....	26
27 Tufts College Medical School, Boston.....	4 110	102	100	102	...	...	414	93	Dwight O'Hara, M.D., Acting Dean.....	27
MICHIGAN										
28 University of Michigan Medical School, Ann Arbor.....	3 163	145	111	116	...	...	535	118	A. C. Furstenberg, M.D., Dean.....	28
29 Wayne University College of Medicine, Detroit.....	2 75	66	66	53	...	...	263	68	Edgar H. Norris, M.D., Dean.....	29
MINNESOTA										
30 University of Minnesota Medical School, Minneapolis.....	2 121	123	140	110	119	...	494	108	Harold S. Diehl, M.D., Dean.....	30
MISSOURI										
31 St. Louis University School of Medicine, St. Louis.....	60 sem. hrs. 135	130	99	113	...	...	477	107	Alphonse M. Schwikalla, S.J., Ph.D., Dean.....	31
32 Washington University School of Medicine, St. Louis.....	2 87	85	109	116	...	...	397	110	Phillip A. Stauffer, Ph.D., Dean.....	32
NEBRASKA										
33 Creighton University School of Medicine, Omaha.....	2 70	68	60	69	...	...	257	69	Charles M. Wilhelm, M.D., Dean.....	33
34 University of Nebraska College of Medicine, Omaha.....	65 sem. hrs. 91	87	86	70	...	...	340	73	O. W. M. Poynter, M.D., Dean.....	34

NEW YORK

35	Albany Medical College, Albany.....	3	51	41	40	38	...	170	38	R. S. Cunningham, M.D., Dean.....	35
36	Long Island College of Medicine, Brooklyn.....	3	123	106	103	61	...	81	61	Dean A. Curran, M.D., President and Dean.....	36
37	University of Buffalo School of Medicine, Buffalo.....	2	86	76	70	61	...	305	37	Edward W. Koch, M.D., Dean.....	37
38	Columbia University College of Physicians and Surgeons, New York.....	2	110	117	124	100	...	466	108	Willard C. Rappleye, M.D., Dean.....	38
39	Cornell University Medical College, New York.....	3	84	77	73	70	...	310	75	Joseph C. Halsey, Ph.D., Dean.....	39
40	New York Medical College, Flower and Fifth Avenue Hospitals, New York.....	3	100	98	92	83	...	373	83	J. A. W. Hetrick, M.D., President and Dean.....	40
41	New York University College of Medicine, New York.....	2	142	126	131	122	...	621	121	Donald Sheehan, M.D., Acting Dean.....	41
42	University of Rochester School of Medicine and Dentistry, Rochester.....	2	69	62	64	62	...	257	63	George H. Whipple, M.D., Dean.....	42
43	Syracuse University College of Medicine, Syracuse.....	2	57	53	46	38	...	194	38	H. G. Welskotten, M.D., Dean.....	43
NORTH CAROLINA											
44	Duke University School of Medicine, Durham.....	2	77	67	78	64	...	486	60	Wilhelm C. Davidson, M.D., Dean.....	44
45	Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.....	2	51	44	35	31	...	161	27	C. C. Carpenter, M.D., Dean.....	45
OHIO											
46	University of Cincinnati College of Medicine, Cincinnati.....	90 sem. hrs.	88	81	81	75	...	325	74	Stanley Dorst, M.D., Dean.....	46
47	Western Reserve University School of Medicine, Cleveland.....	2	91	85	74	67	...	317	66	Webster G. Simon, Ph.D., Acting Chairman, Administrative Committee.....	47
48	Ohio State University College of Medicine, Columbus.....	3	83	78	63	70	...	299	68	R. C. Baker, Ph.D., Acting Dean.....	48
OKLAHOMA											
49	University of Oklahoma School of Medicine, Oklahoma City.....	2	70	69	50	51	...	232	51	Tom Lowry, M.D., Dean.....	49
OREGON											
50	University of Oregon Medical School, Portland.....	2% & Degree	78	72	70	64	...	284	63	D. W. E. Baird, M.D., Dean.....	50
PENNSYLVANIA											
51	Hahnemann Medical College and Hospital of Philadelphia.....	2	154	138	113	116	...	621	115	William G. Schmidt, Ph.D., Acting Dean.....	51
52	A Jefferson Medical College of Philadelphia.....	2	159	140	138	133	...	670	133	William H. Perkins, M.D., Dean.....	52
53	Temple University School of Medicine, Philadelphia.....	60 sem. hrs.	121	114	114	110	...	468	117	William N. Parkinson, M.D., Dean.....	53
54	University of Pennsylvania School of Medicine, Philadelphia.....	3	134	117	134	132	...	617	130	William Pepper, M.D., Dean.....	54
55	Woman's Medical College of Pennsylvania, Philadelphia.....	3	44	44	31	21	...	140	21	Marion Fay, Ph.D., Acting Dean.....	55
56	University of Pittsburgh School of Medicine, Pittsburgh.....	2	86	80	78	82	...	323	81	William S. McElroy, M.D., Dean.....	56
SOUTH CAROLINA											
57	Medical College of the State of South Carolina, Charleston.....	2	50	46	49	43	...	188	43	Kenneth M. Lynch, M.D., Dean.....	57
TENNESSEE											
58	University of Tennessee College of Medicine, Memphis.....	2	182	117	133	113	...	965	82	O. W. Hymann, Ph.D., Dean.....	58
59	McHenry Medical College, Nashville.....	2	65	61	62	62	...	250	62	Michael J. Bent, M.D., Dean.....	59
60	Vanderbilt University School of Medicine, Nashville.....	Degree	50	52	53	51	...	306	49	Walter S. Leathers, M.D., Dean.....	60
TEXAS											
61	Southwestern Medical College of the Southwestern Medical Foundation, Dallas.....	60 sem. hrs.	64	70	70	66	...	270	61	Timley Harrison, M.D., Dean of Faculty; Donald Stuart, M.D., Dean of Students.....	61
62	Baylor University College of Medicine, Houston.....	72 sem. hrs.	60	38	15	16	...	120	16	Walter H. Mousund, M.D., Dean.....	62
63	University of Texas School of Medicine, Galveston.....	2½	106	110	99	86	...	401	87	Chauncey D. Leake, Ph.D., Dean.....	63
UTAH											
64	University of Utah School of Medicine, Salt Lake City.....	3	42	44	40	...	...	126	...	A. Cyril Callister, M.D., Dean.....	64
VERMONT											
65	University of Vermont College of Medicine, Burlington.....	3	40	36	32	34	...	142	33	Clarence H. Beecher, M.D., Dean.....	65
VIRGINIA											
66	University of Virginia Department of Medicine, Charlottesville.....	2	73	62	75	54	...	264	54	Harvey E. Jordan, Ph.D., Dean.....	66
67	Medical College of Virginia, Richmond.....	2	80	81	78	72	...	311	71	J. P. Gray, M.D., Dean.....	67
WISCONSIN											
68	University of Wisconsin Medical School, Madison.....	2	75	74	59	57	...	205	57	Walter J. Meek, Ph.D., Acting Dean.....	68
69	Marquette University School of Medicine, Milwaukee.....	3	97	93	85	72	...	347	70	Eben J. Carey, M.D., Dean.....	69
CANADA											
70	University of Alberta Faculty of Medicine, Edmonton, Alta.....	3	22	21	...	34	371	151	35	Allan C. Rankin, M.D., Dean.....	70
71	University of Manitoba Faculty of Medicine, Winnipeg, Man.....	2	60	55	53	56	631	229	61	A. T. Mathers, M.D., Dean.....	71
72	Dalhousie University Faculty of Medicine, Halifax, N. S.....	2	50	40	47	32	374	169	36	H. G. Grant, M.D., Dean.....	72
73	Queen's University Faculty of Medicine, Kingston, Ont.....	1	48	49	44	44	411	272	47	G. Spencer Melvin, M.D., Dean.....	73
74	University of Western Ontario Medical School, London, Ont.....	1	52	43	38	31	...	201	47	F. J. H. Campbell, M.D., Dean.....	74
75	University of Toronto Faculty of Medicine, Toronto, Ont.....	1	149	126	130	125	1271	772	107	W. E. Galle, M.D., Dean.....	75
76	McGill University Faculty of Medicine, Montreal, Que.....	3	116	102	91	100	...	400	97	J. R. Fraser, M.D., Dean.....	76
77	University of Montreal Faculty of Medicine, Montreal, Que.....	Degree	122	74	56	46	614	208	52	Albert Lesage, M.D., Dean.....	77
78	Laval University Faculty of Medicine, Quebec, Que.....	Degree	122	105	71	61	57	416	57	Charles Vézina, M.D., Dean.....	78

Statistics of approved schools of the basic medical sciences will be found in table 10, page 1118.

* These premedical requirements apply to civilian applicants in most instances. All schools in the United States will consider completion of the Army or Navy premedical program, by male applicants on active duty, as fulfilling academic enrollment requirements.
† Fifth year (internship) enrollment not included in total column.
‡ Sixth year enrollment: Alberta 37; Queens 46; Western Ontario 37; Toronto 106.
• For Army and Navy; all others degree required.

of students. The Bowman Gray School of Medicine, at Winston-Salem, N. C., has expanded from a school of the basic medical sciences to a four year medical school. Its first class graduated in December 1943. The University of Utah School of Medicine, at Salt Lake City, has also developed a four year program and graduates its first class in September 1944. Both Bowman Gray and Utah have been added to the Council's approved list, which increases the number of approved medical schools in the United States to 69.

There remain 8 schools of the basic medical sciences. The University of Alabama has virtually completed plans for expansion to the four year status, employing the clinical facilities of Hillman and Jefferson hospitals in Birmingham. One city block adjacent to the hospitals has been given to the university. One million dollars has been appropriated for the construction and equipment of basic science laboratories on this site after the war. Until then, Dr. Stuart Graves will continue as dean of the Basic Science School at Tuscaloosa. Dr. Roy R. Kracke is in charge at Birmingham. It is

APPROVED MEDICAL SCHOOLS

Medical schools and schools of the basic medical sciences in the United States and Canada approved by the Council on Medical Education and Hospitals of the American Medical Association for the academic session 1943-1944 are listed in tables 9 and 10, pages 1116, 1117 and 1118. The tables include quantitative premedical requirements for applicants not in the A. S. T. P. or V-12 premedical programs. The enrollment by classes, including fifth year students interning or engaged in research, and the total attendance, which does not include fifth year students, apply to the first academic year beginning 1943. The number of graduates from July 1, 1943 to June 30, 1944 is listed. The name of the dean or acting dean is also given. Figures for the sixth year enrollment in Canadian schools are given in a footnote.

The probationary status of the University of Arkansas and the University of Texas has been removed by the Council, so that at present no four year schools of

TABLE 10—Approved Schools of the Basic Medical Sciences in the United States and Canada

Name and Location of School		1945 Pre medical Require- ment by Year	Students by Classes, First Session Beginning in 1943			Executive Officer
			1st Year	2d Year	Totals	
ALABAMA						
1	University of Alabama School of Medicine, University (Tuscaloosa)	6 sem. hrs	54	54	108	Stuart Graves, M D, Dean 1
MISSISSIPPI						
2	University of Mississippi School of Medicine, University	3	30	25	55	J. B. Looper, M D, Dean 2
MISSOURI						
3	University of Missouri School of Medicine, Columbia	2	45	35	80	Dudley S. Conley, M D, Dean. 3
NEW HAMPSHIRE						
4	Dartmouth Medical School, Hanover	3 & degree 2	25	45	70	John P. Bowler, M D, Dean. . . . 4
NORTH CAROLINA						
5	University of North Carolina School of Medicine, Chapel Hill	3	30	41	71	W. Rutter Berryhill, M D, Dean .. 5
NORTH DAKOTA						
6	*University of North Dakota School of Medicine, Grand Forks	90 sem. hrs	29	28	57	H. E. French, M D, Dean 6
SOUTH DAKOTA						
7	*University of South Dakota School of Medical Sciences, Vermillion	2	26	15	41	Joseph C. Ohlhauser, M D, Dean . 7
WEST VIRGINIA						
8	West Virginia University School of Medicine, Morgantown	3	30	25	55	Edward J. Van Liere, M D, Dean . 8
CANADA						
9	University of Saskatchewan School of Medical Sciences, Saskatoon, Sask	2	24	22	46	W. S. Lindsay, M B, Dean 9

* On probation.

These premedical requirements apply to civilian applicants in most instances. All schools in the United States will consider completion of the Army or Navy premedical program, by male applicants on active duty, as fulfilling academic admission requirements.

hoped that junior instruction will commence in Birmingham by July 1945.

At least 3 of the remaining basic science schools are seriously considering developing the full four years. This trend in the basic science schools may be ascribed to three major factors: (1) the increasing difficulty encountered by students in these schools to obtain admission to junior classes in other schools, (2) the closer integration of basic science and clinical work in medical education, requiring availability of clinical facilities for sophomore and even freshman work, and (3) the desire of states to increase the proportion of medical students in state schools who will remain in the state to practice medicine.

The war has accentuated the maldistribution of physicians to urban and rural communities. Several states are contemplating the formation of new medical schools "to provide doctors for rural communities." But there is no assurance that more doctors will practice in small towns if more doctors are produced. The production and the distribution of doctors are independent. The mere production of more doctors is more likely to produce overcrowding of physicians in large cities than to fill the unmet needs in rural areas.

medicine are on probation. Two schools of the basic medical sciences remain on probation.

The fifth or intern year is now required for the M.D. degree by only 5 schools in the United States: College of Medical Evangelists, Southern California, Stanford, Northwestern and Minnesota.

General historical information regarding all institutions on the approved list maintained by the Council appears on pages 1134 to 1142.

ENROLLMENTS

Enrollment figures by classes for the first session beginning in 1943 are given in tables 9 and 10 and recapitulated in table 11. In the 77 schools in the United States there were 23,529 students studying medicine (excluding the fifth year), which is an increase of 898, or 4.0 per cent, above the preceding academic session. In the Canadian schools there were 2,475 students (excluding the fifth and sixth years), an enrollment increase of 89 students, or 3.7 per cent. In addition there were 451 fifth or intern year students in schools in the United States plus 262 fifth year, 226 sixth year students and 150 interns in Canada.

In schools offering the complete four years of work, the 4 schools in the United States with the highest enrolments were Illinois 676, Northwestern 590, Jefferson 570 and Tennessee 565. Eleven schools had enrolments exceeding 500. The 3 with the lowest enrolments were Baylor 129, Woman's Medical College 140 and Vermont 142. Utah, with 126 students, had no fourth year class during the session for which these data are given. In Canada the highest enrolment occurred at Toronto with 772 students in the six years, and the lowest at Alberta with 151 students in its five year course.

Alabama was the only basic science school with more than 50 students in a class, that school enrolled 54 students in each of the two classes. The lowest enrolment (in the United States) occurred at South Dakota, with 26 freshmen and 18 sophomores.

In table 12 are given the enrolments in the classes of the "present" academic session, which for most schools runs from about January to September 1944 and in all schools includes the month of May 1944.

TABLE 11—Total Enrolments by Classes in Medical Schools of the United States and Canada for the First Session Beginning in 1943, with Totals for Preceding and Following Academic Sessions. Students in the Intern Year Are Not Included

	Freshmen	Sophomores	Juniors	Seniors	Total	Total Preceding Session*	* Present, Session Including May 1944
40 Medical Schools (U. S.)	6,232	5,776	5,640	5,201	23,000	21,911	23,100
5 Basic Science Schools (U. S.)	579	290	—	—	624	720	600
Total (U. S.)	6,811	6,071	5,640	5,201	23,624	22,631	23,782
12 Medical Schools (Canada)†	741	610	541	579	2,471	2,412	—
1 Basic Science School (Canada)	94	72	—	—	166	144	—
Totals (Canada)	835	682	541	579	2,637	2,556	—
Totals U. S. and Canada	7,646	6,753	6,181	5,780	26,261	25,187	—

* Academic session ending with admission of first class in 1940.

† The first four years in some Canadian schools do not correspond to those years in schools of the United States.

‡ Does not include 488 in fifth and sixth year.

For comparison with enrolments in the two preceding sessions, total figures are also given in the last column of table 11. In this session there were 23,782 students enrolled in the schools of the United States. This is a further increase of 253 students in excess of the preceding session. In the past three sessions enrolments have increased 27 per cent, 40 per cent and 11 per cent. Despite the low last overall increase, figures by classes for the past few sessions indicate that certain schools have increased the numbers in entering classes well beyond what is probably warranted.

This trend is evident in the figures of table 13, which gives the number of students enrolled in the four classes and in internships when required for graduation in medical schools of the United States, covering the past fourteen years. In each of the four medical school classes there were more students enrolled during the first academic session beginning in 1943 than at any previous time in the fourteen year period. Excluding the interns, enrolments have increased by 2,150, or 10 per cent, since the 1940-1941 academic session, although in some schools the increase has been considerably in excess of 10 per cent. The total enrol-

ments at the present time are higher than at any time since 1907, when there were 159 medical schools in existence.

Table 13 also shows the continuing decrease in numbers in the required intern year.

TABLE 12—Enrolment "Present" Academic Session Including May 1944

	1st Year	2d Year	3d Year	4th Year	Total
University of Alabama	38	32	—	—	110
University of Arkansas	75	71	61	64	275
University of California	74	72	74	70	290
College of Medical Evangelists	97	94	92	74	357
University of Southern California	65	63	67	75	248
Stanford University	61	60	62	59	242
University of Colorado	61	70	56	57	230
Yale University (Connecticut)	63	63	61	48	235
Georgetown University (Dist. Col.)	103	86	83	65	311
George Washington University	83	78	73	75	309
Howard University	74	69	58	70	271
Emory University (Georgia)	67	68	66	60	251
University of Georgia	76	74	66	60	278
Loyola University (Illinois)	83	73	78	77	317
Northwestern University	131	123	152	169	575
University of Chicago	61	61	62	61	245
University of Illinois	160	164	184	167	680
Indiana University	128	100	98	111	437
State University of Iowa	87	88	86	73	314
University of Kansas	80	78	79	87	324
University of Louisville (Kentucky)	96	84	98	90	378
Louisiana State University	102	81	83	80	346
Lafayette University	136	128	137	135	536
Johns Hopkins University (Maryland)	78	74	81	77	310
University of Maryland	11	99	88	96	394
Boston University (Massachusetts)	67	63	68	73	271
Harvard Medical School	125	123	139	142	529
Tufts College	111	102	101	100	414
University of Michigan	70	—	144	113	327
Wayne University	100	64	75	70	279
University of Minnesota	118	119	111	137	485
University of Mississippi	30	31	—	—	61
St. Louis University (Missouri)	116	124	136	98	500
University of Missouri	37	31	—	—	68
Washington University	86	71	105	102	372
Creighton University (Nebraska)	74	61	61	71	267
University of Nebraska	84	76	76	86	322
Dartmouth Medical School (N. H.)	24	22	—	—	46
Albany Medical College (New York)	50	45	41	31	175
Long Island College	114	107	93	100	420
University of Buffalo	81	81	75	70	312
Columbia University	121	110	118	123	472
Cornell University	83	76	79	79	317
New York Medical College	128	98	97	83	412
New York University	127	128	127	134	516
University of Rochester	67	66	63	66	262
Syracuse University	57	19	48	46	200
Duke University (North Carolina)	76	76	68	82	302
University of North Carolina	34	13	—	—	47
Bowman Gray School of Medicine	49	41	18	38	170
University of North Dakota	27	24	—	—	51
University of Cincinnati (Ohio)	82	73	80	81	322
Western Reserve University	80	83	88	73	324
Ohio State University	82	76	76	64	298
University of Oklahoma	76	72	72	76	296
University of Oregon	73	72	71	66	282
Hahnemann Med. Coll. (Pennsylvania)	151	138	126	107	522
Jefferson Medical College	111	140	156	135	590
Temple University	125	111	128	111	475
University of Pennsylvania	192	121	133	111	557
Woman's Medical College	45	15	32	21	113
University of Pittsburgh	88	73	77	78	322
Medical College of South Carolina	50	42	50	18	190
University of South Dakota	26	21	—	—	47
University of Tennessee	183	117	152	165	617
Meharry Medical College	66	63	62	61	252
Marshall University	12	47	54	52	205
Southwestern Medical Coll. (Texas)	12	31	18	58	209
Baylor University	84	71	31	15	191
University of Texas	75	90	110	96	391
University of Utah	12	44	42	37	165
University of Vermont	38	38	36	32	144
University of Virginia	71	62	61	77	271
Medical College of Virginia	82	71	101	76	330
West Virginia University	30	21	—	—	51
University of Wisconsin	71	72	72	10	275
Marquette University	36	88	80	87	311
Totals	6,538	5,778	5,875	5,591	23,782

GRADUATES

Graduates from July 1, 1943 to June 30, 1944 are included in table 9, pages 1116 and 1117. In this period there were 5,134 graduates. The four schools graduating the most students were Illinois 161, Northwestern 161, Jefferson 133 and Harvard 132. The

smallest numbers were graduated from Baylor 16, Woman's Medical College 21 and Bowman Gray 27. From the 9 medical schools of Canada there were 523 graduates. The largest number, 107, graduated from Toronto and the smallest number, 31, received degrees from Western Ontario.

TABLE 13.—Students in the United States by Years, Including the Intern Year When Required for Graduation, 1931-1944

	Preclinical		Clinical		Intern Year	Total
1930-1931.....	6,456	5,533	5,080	4,908	1,025	23,037
1931-1932.....	6,269	5,402	4,932	4,885	1,067	23,202
1932-1933.....	6,426	5,479	5,017	4,948	1,106	23,572
1933-1934.....	6,457	5,571	4,988	4,937	1,183	23,082
1934-1935.....	6,356	5,624	5,142	4,905	1,233	24,121
1935-1936.....	6,065	5,458	5,230	5,020	1,213	23,777
1936-1937.....	5,910	5,269	5,140	5,158	1,255	23,350
1937-1938.....	5,791	5,225	4,956	5,036	1,132	22,719
1938-1939.....	5,754	5,160	4,947	4,921	1,152	22,454
1939-1940.....	5,794	5,177	4,921	4,894	1,152	22,423
1940-1941.....	5,837	5,234	4,969	4,849	1,058	22,437
1941-1942.....	6,218	5,406	5,087	4,942	767	22,798
1942-1943.....	6,425	5,828	5,278	5,100	639	23,270
1943-1944.....	6,561	6,071	5,640	5,257	451	23,980

Table 14 gives the number of students and graduates for the past forty years. The effects of acceleration on numbers of graduates do not yet appear in these statistics because the latest figure consists mainly of those who graduated in December 1943. Most schools will graduate another class very soon after this Educational Number is published. In most schools there will have been two additional graduations (in about September 1944 and June 1945) before the appearance of the 1945 Educational Number. For further discussion of the effects of acceleration on numbers of graduates see "The Accelerated Program," page 1112.

GRADUATES BY STATES

The 77 schools in the United States are located in thirty-six states and the District of Columbia. The numbers of schools, students and graduates in these

TABLE 14.—Schools, Students and Graduates in the United States, 1905-1944

	Schools	Students *	Graduates
1905.....	160	26,147	5,626
1910.....	131	21,526	4,440
1915.....	96	14,891	3,536
1920.....	85	13,798	3,047
1921.....	81	14,466	3,186
1922.....	83	15,635	2,529
1923.....	80	16,960	3,120
1924.....	79	17,728	3,562
1925.....	80	18,200	3,974
1926.....	80	18,840	3,962
1927.....	80	19,662	4,035
1928.....	80	20,345	4,262
1929.....	76	20,878	4,446
1930.....	76	21,507	4,565
1931.....	76	21,982	4,735
1932.....	76	22,195	4,936
1933.....	77	22,406	4,895
1934.....	77	22,799	5,035
1935.....	77	22,888	5,101
1936.....	77	22,564	5,183
1937.....	77	22,095	5,377
1938.....	77	21,587	5,104
1939.....	77	21,202	5,009
1940.....	77	21,271	5,097
1941.....	77	21,379	5,275
1942.....	77	22,031	5,161
1943.....	76	22,631	5,223
1944.....	77	23,529	5,131

* Includes figures for schools of the basic medical sciences.

states are shown in table 15. Each of six states enrolled over a thousand students in their schools. Students and graduates of the 29 schools of these states total more than 45 per cent of all students and graduates in the United States. In order, these states are

New York 9 schools, 3,008 students, 678 graduates; Pennsylvania 6 schools, 2,542 students, 597 graduates; Illinois 4 schools, 1,849 students, 464 graduates; Massachusetts 3 schools, 1,188 students, 276 graduates; California 4 schools, 1,097 students, 237 graduates; and Tennessee 3 schools, 1,021 students, 193 graduates.

Seven of the thirty-six states with schools had no graduates, since their schools did not offer the complete medical course. Twelve states had less than 100 graduates, the lowest being Vermont, with 33 graduates from its 1 medical school.

RESIDENCE OF STUDENTS

The permanent home residence of all students in medical schools of the United States and Canada during the first academic session commencing in 1943 is indicated in table 16, pages 1122 and 1123. It is felt that

TABLE 15.—Schools, Students and Graduates by States *

	Schools	Students	Graduates
Alabama.....	1	103	...
Arkansas.....	1	279	60
.....	1	1,097	237
.....	1	235	56
.....	1	223	49
Georgia.....	3	869	176
Illinois.....	2	498	95
Indiana.....	4	1,849	464
Iowa.....	1	566	124
Kansas.....	1	317	64
Kentucky.....	1	330	83
Louisiana.....	1	363	88
Maryland.....	2	668	128
.....	2	666	139
.....	3	1,188	276
.....	2	800	176
.....	1	494	103
Missouri.....	1	55	...
Nebraska.....	2	954	217
New Hampshire.....	1	597	132
New York.....	9	48	...
North Carolina.....	3	3,008	678
North Dakota.....	1	338	87
Ohio.....	1	57	...
Oklahoma.....	3	941	203
Oregon.....	1	252	51
Pennsylvania.....	1	254	63
South Carolina.....	6	2,542	597
South Dakota.....	1	188	43
Tennessee.....	1	44	...
Texas.....	3	1,021	193
Utah.....	3	800	164
Vermont.....	1	120	...
Virginia.....	1	112	33
West Virginia.....	2	575	123
Wisconsin.....	1	55	...
.....	2	612	127
Totals.....	77	23,529	5,131

* Excluding fifth or intern year students.

a tabulation of the permanent residence of students may give a better indication of the geographic source of medical students than would a tabulation of the birthplace, since many students may leave the state of their birth and become identified with another state through years of residence. On the other hand, it is recognized that the home residence at the time of admission to a medical school might have been of relatively recent origin in some cases.

Included in the table are 23,529 students in schools of the United States and 2,475 students in the first four years plus 488 fifth and sixth year students in Canada, totaling 26,492. Students in the intern year are not included.

Every state in the Union, including the District of Columbia, had 18 or more medical students in the schools listed. Residents of New York provided the greatest number of students, 2,881. Next in order are Pennsylvania 1,857, Illinois 1,384, Ohio 1,298 and California 1,162. These five states supply a total of 8,582 students, or nearly a third of the registration of

the 87 schools in the United States and Canada. However, these states provide facilities for the training of well over a third of all students of the United States and Canada, since 9,437 students were enrolled in the 26 schools in these five states.

Of the 2,963 students in Canadian schools in all six years 175, or 5.9 per cent, came from the United States. Most of these, 121, were enrolled at McGill, nearly a third of whose student body of 409 comes from the United States.

There were 197 students from the United States territories and possessions in 40 schools in the United States. None were enrolled in Canada.

Students from Canada numbered 2,745, of whom 2,708 were in the 10 Canadian schools and 37 in 9 schools in the United States. Twenty-four Canadians attended the College of Medical Evangelists, 5 the University of Minnesota. In none of the other 7 schools were there more than 2 Canadian students.

Foreign students numbered 260, of whom 180 attended 43 schools in the United States and 80 were enrolled in 6 Canadian schools. Schools enrolling the largest numbers of foreign students were the College of Medical Evangelists, 39, and Tulane, 21.

TABLE 17.—Enrolment of Students from States in Which There Are No Medical Schools

	Students Enrolled	No. of Schools	School with Greatest Number from State and Number of Students
Arizona.....	79	35	Northwestern (8)
Delaware.....	44	19	Jefferson (8)
Florida.....	238	36	Emory (43)
Idaho.....	108	29	Oregon (13)
Maine.....	69	26	Tufts (13)
Montana.....	79	25	St. Louis (13)
Nevada.....	18	13	Stanford (3)
New Jersey.....	858	58	New York Univ. (97)
New Mexico.....	39	16	Chicago (5)
Rhode Island.....	110	22	Tufts (29)
Washington.....	360	41	Northwestern (59)
Wyoming.....	32	12	Oregon (59)
Total.....	2,054		Colorado (7)

There are twelve states in the Union in which no medical schools are located. These states are listed in table 17, which also shows the number of students from each of these states enrolled in medical schools, as well as the number of schools to which these students went. There were 2,054 such students, over half of whom came from New Jersey and Washington. From New Jersey 858 students attended 58 medical schools. The greatest number, 97 students, attended New York University. From Washington there were 360 students in 41 schools; of these, 59 students attended Oregon and 59 Northwestern.

Table 18 gives the resident and nonresident enrolment in each of the 77 schools in the United States. More than one third of the students were enrolled in schools outside the state of their residence. The following 23 schools enrolled more nonresident students than students from the state in which the school is located:

Medical Evangelists	Tulane	Cornell
Yale	Johns Hopkins	Duke
Georgetown	Harvard	Hahnemann
George Washington	St. Louis	Woman's
Howard	Washington	Meharry
Northwestern	Vanderbilt	Vanderbilt
Chicago	Dartmouth	Marquette
Louisville	Columbia	

Only 4 schools admitted no students nonresident in the state: Georgia, Mississippi, Missouri and Texas.

REQUIRED INTERNSHIP

The medical schools requiring a hospital internship for the M.D. degree are shown in table 19. Six schools in the United States and 4 in Canada require an intern-

TABLE 18.—Resident and Nonresident Students

	Resident Students	Nonresident Students	Totals
University of Alabama.....	99	9	108
University of Arkansas.....	262	17	279
University of California.....	269	13	282
College of Medical Evangelists.....	58	277	335
University of Southern California.....	224	14	238
Stanford University.....	200	42	242
University of Colorado.....	195	40	235
Yale University (Connecticut).....	52	171	223
Georgetown University (Dist. of Columbia).....	97	281	318
George Washington University.....	96	198	294
Howard University.....	35	222	257
Emory University (Georgia).....	150	89	239
University of Georgia.....	259	0	259
Loyola University (Illinois).....	191	121	312
Northwestern University.....	211	379	590
University of Chicago, The School of Med.	115	156	271
University of Illinois.....	610	66	676
Indiana University.....	490	16	506
State University of Iowa.....	306	11	317
University of Kansas.....	303	27	330
University of Louisville (Kentucky).....	170	193	363
Louisiana State University.....	290	49	339
Tulane University of Louisiana.....	150	379	529
Johns Hopkins University (Maryland).....	47	248	295
University of Maryland.....	192	179	371
Boston University (Massachusetts).....	142	106	248
Harvard Medical School.....	114	412	526
Tufts College.....	323	91	414
University of Michigan.....	361	174	535
Wayne University.....	248	17	265
University of Minnesota.....	421	73	494
University of Mississippi.....	55	0	55
University ".....	80	0	80
St. Louis.....	84	393	477
Washington.....	137	240	397
Creighton.....	50	207	257
University.....	322	18	340
Dartmouth.....	5	43	48
Albany Medical College (New York).....	135	35	170
Long Island College of Medicine.....	302	111	413
University of Buffalo.....	248	47	295
Columbia University.....	216	250	466
Cornell University.....	148	171	319
New York Medical College.....	274	99	373
New York University.....	373	148	521
University of Rochester.....	141	116	257
Syracuse University.....	162	32	194
University of North Carolina.....	69	22	91
Duke University.....	75	211	286
.....dicine.....	110	51	161
.....tio).....	51	6	57
.....	236	89	325
.....	250	67	317
.....	298	1	299
.....	243	9	252
University of Oregon.....	202	82	284
Hahnemann Med. College (Pennsylvania).....	259	262	521
Jefferson Medical College.....	330	240	570
Temple University.....	278	190	468
University of Pennsylvania.....	293	224	517
Woman's Medical College.....	34	106	140
University of Pittsburgh.....	317	9	326
Medical College of South Carolina.....	182	6	188
University of South Dakota.....	40	4	44
University of Tennessee.....	308	257	565
Meharry Medical College.....	10	240	250
Vanderbilt University.....	81	125	206
Southwestern Medical College (Texas).....	256	11	270
Baylor University.....	114	15	129
University of Texas.....	401	0	401
University of Utah.....	119	7	126
University of Vermont.....	100	33	132
University of Virginia.....	168	98	266
Medical College of Virginia.....	175	136	311
West Virginia University.....	42	13	55
University of Wisconsin.....	248	17	265
Marquette University.....	113	204	317
Totals.....	14,811	8,718	23,529

ship for graduation. No change in the list has occurred within the past year.

In the past year there were 451 students in the United States and 150 in Canada, a total of 600, reported as completing the fifth or intern year in fulfilment of the internship requirement for the M.D. degree.

TABLE 16.—Residence

Marshall Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Marshall Number
1 University of Alabama School of Medicine.....	49								3			1	1			1			1		1	1
2 University of Arkansas School of Medicine.....			362																		2	2
3 University of California Medical School.....	1	1		249								1									1	3
4 College of Medical Evangelists.....	1	1		58	5	1	5	8	1	5	9	4	9	7	1	1	1				8	13
5 University of So. California School of Medicine.....		3		224																	1	5
6 Stanford University School of Medicine.....		2		250							1	1	1	1								6
7 University of Colorado School of Medicine.....		1	3	195	1						2	1	1	1								7
8 Yale University School of Medicine.....	1	1	1	4	2	32					2	3	2	2	1		5	1	32	3	8	8
9 Georgetown University School of Medicine.....	1			8		17	1	37	3	1	1	1					5	13	22	1	9	9
10 George Washington University School of Med.	4	5		20	1	5		26			7	2	3			1	1	13	5	2	10	10
11 Howard University College of Medicine.....	5	1	2	3			3				8	2	1			1	8	6	4	2	11	11
12 Emory University School of Medicine.....	14						2		13	150			1			2	1				12	12
13 University of Georgia School of Medicine.....									259												13	13
14 Loyola University School of Medicine.....	1			4		4					191	12	9	1		1			1	11	14	14
15 Northwestern University Medical School.....	6	8	1	27	5			1	2		11	211	29	13	8	3			1	19	15	15
16 University of Chicago, The School of Medicine.....		1	1	5	2			1			9	115	12	8	2	1		1	1	14	14	14
17 University of Illinois College of Medicine.....	3			1		1		1			610	6	3	1	1	1	1	2	2	4	17	17
18 Indiana University School of Medicine.....											1	490	1		1				1		19	19
19 State University of Iowa College of Medicine.....				1		1							306								20	20
20 University of Kansas School of Medicine.....														303							21	21
21 University of Louisville School of Medicine.....	5	2	1	9	1	1			3	1	4	5	23	2		170					22	22
22 Louisiana State University School of Medicine.....	8								3	1						350					23	23
23 Tulane University of Louisiana School of Med.	32	6	8	8				26	14		1	1		4	6	150		3	47	19	6	24
24 Johns Hopkins University School of Medicine.....	3		2	9		5	2	12	13	9	1	6	4		2	1		5	102	11	5	25
25 University of Maryland School of Medicine.....	2	3		2		6	3	10	8	11		1	1					10		142	25	25
26 Boston University School of Medicine.....	1			12		15	1				1	1						10		114	26	26
27 Harvard Medical School.....	8	5	2	18	2	13	1	6	5	3	2	23	5	2		7		6	4	114	27	27
28 Tufts College Medical School.....						22					1						11			223	28	28
29 University of Michigan Medical School.....	1			5		4		3	4		2	8	6							248	29	29
30 Wayne University College of Medicine.....	1										1									248	30	30
31 University of Minnesota Medical School.....	1			1					1		1	2		5	3	1				2	31	31
32 University of Mississippi School of Medicine.....																					32	32
33 University of Missouri School of Medicine.....																					33	33
34 St. Louis University School of Medicine.....	1	4	1	43	1	2			2	7	31	18	12	8	1		2	1	8	8	34	34
35 Washington University School of Medicine.....	15	6	5	18	4	1			1	10	47	4	7	13						1	35	35
36 Creighton University School of Medicine.....		2		50	8						4	3		31	12					4	36	36
37 University of Nebraska College of Medicine.....				1				1													37	37
38 Dartmouth Medical School.....				1	1	2	1	1				4								7	1	38
39 Albany Medical College.....				1	1							3									8	39
40 Long Island College of Medicine.....	5			3	1	20	1	1	4			1				1		2		3	41	41
41 University of Buffalo School of Medicine.....				1	2	1				1		1									42	42
42 Columbia University College of Phys. and Surg.	5	3	1	2	1	29		3	4	3	3	8	2	3	1	1	1	3	2	34	2	43
43 Cornell University Medical College.....	5			10	2	10		2	2	1		2		1				7		19	1	44
44 New York Medical College.....	1			3		12						1								8	1	45
45 New York University College of Medicine.....	1			1		16	1	2	1	1		1								17	2	46
46 Univ. of Rochester School of Med. and Dentistry ..	1			15		3	2	2	1	1		1			1	2	1	2			47	47
47 Syracuse University College of Medicine.....	1	2		1		2			1			1								2		48
48 University of North Carolina School of Medicine ..						1		3	4												49	49
49 Duke University School of Medicine.....	6	1	2	1			1	2	27	10	2	3	1			2		3	5	6	50	50
50 Bowman Gray Sch. of Med. of Wake Forest Coll.	3	1		1					5	6					1	4	1				51	51
51 University of North Dakota School of Medicine ..				3	1	1			2			8	10			20		1		5	10	52
52 University of Cincinnati College of Medicine.....						2	1				3	2									53	53
53 Western Reserve University School of Medicine.....				2								1									54	54
54 Ohio State University College of Medicine.....																					55	55
55 University of Oklahoma School of Medicine.....		1			1						13										56	56
56 University of Oregon Medical School.....				4		10	1	1	3	1	1	6	4	3		2			1	9	1	57
57 Hahnemann Medical College.....	9	4	5	22	1	16	8	2	1	5	3	4	1					2	1	7	1	58
58 Jefferson Medical College of Philadelphia.....	8			5		3	7	2	9	3	1	1						2	1	8	1	59
59 Temple University School of Medicine.....	1	2		4		6	6	2	4		1	3	4		3	1	2	7	4	1	60	60
60 University of Pennsylvania School of Medicine.....	19			16	1	1		1	4	2	2	8									61	61
61 Woman's Medical College of Pennsylvania.....																					62	62
62 University of Pittsburgh School of Medicine.....	1																				63	63
63 Medical College of the State of South Carolina ..												1	2								64	64
64 Univ. of South Dakota School of Med. Sciences ..	17	1	21						12	2	2	1			2	18	1		1	4	65	65
65 University of Tennessee College of Medicine.....	12	2	2	3	1	1	3	4	5	10		21	6			28	11				66	66
66 Meharry Medical College.....	22		1		1			1	5	7											67	67
67 Vanderbilt University School of Medicine.....	2	2																			68	68
68 Southwestern Medical College.....	2			1																	69	69
69 Baylor University College of Medicine.....																					70	70
70 University of Texas School of Medicine.....		1									1	1									71	71
71 University of Utah School of Medicine.....																					72	72
72 University of Vermont College of Medicine.....																					73	73
73 University of Virginia Department of Medicine.....	5	1		1	1	2			5	5						4			4	1	74	74
74 Medical College of Virginia.....		1		2					1	6											75	75
75 West Virginia University School of Medicine.....												1	3								76	76
76 University of Wisconsin Medical School.....				17	3	2					3	9	2	1							77	77
77 Marquette University School of Medicine.....																					78	78
78 University of Alberta Faculty of Medicine.....				1																	79	79
79 University of Manitoba Faculty of Medicine.....																					80	80
80 Dalhousie University Faculty of Medicine.....																					81	81
81 Queen's University Faculty of Medicine.....																					82	82
82 University of Western Ontario Medical School.....																					83	83
83 University of Toronto Faculty of Medicine.....																					84	84
84 McGill University Faculty of Medicine.....	1			21																	85	85
85 University of Montreal Faculty of Medicine.....																					86	86
86 Laval University Faculty of Medicine.....																					87	87
87 Univ. of Saskatchewan School of Med. Science.....																					88	88
Totals.....	345	79	215	1162	245	307	44	247	233	356	108	1321	672	423	324	296	469	89	307	911	107	107
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	21

[illegible]

Although relatively few schools require the internship for the M.D. degree, this is required for licensure by twenty-three states, the District of Columbia, Alaska, Hawaii and Puerto Rico. Table 8, page 1115, lists these states and indicates the relationship of this requirement to the nine month internship. In the past year New Mexico has added the internship requirement. Some states require the internship of graduates from schools abroad and applicants for reciprocity or endorsement. The licensing boards of Illinois, Michigan, North Dakota, Pennsylvania and Washington require the internship to be a rotating service, while New Jersey recommends this type of service.

A few of the medical schools and licensing boards maintain their own list of hospitals acceptable for intern training, but the list of approved internships compiled by the Council on Medical Education and Hospitals is generally used.

Government restrictions on the use of paper necessitated omission of the Councils list from the Educational Number of THE JOURNAL. However, copies of the revised list of hospitals approved for internships and residencies have been printed and will be sent to all approved medical schools, medical libraries, approved hospitals, state licensing bodies, specialty boards and other interested agencies. The list is also included in the reprint edition of the Educational Number.

TABLE 19.—Internship Required by Medical Schools

College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Northwestern University Medical School
University of Minnesota Medical School
Duke University School of Medicine
University of Alberta Faculty of Medicine
University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Montreal Faculty of Medicine

DISTRIBUTION BY SEX

Students in the first academic session commencing in 1943 and graduates from July 1, 1943 to June 30, 1944 in the United States and Canada classified according to sex are shown in table 20. The enrolment was 25,113 men and 1,379 women. Graduates numbered 5,390 men and 267 women. All but 5 of the 87 schools reported women students. These schools regularly do not admit women. They are Georgetown, Harvard, St. Louis, Dartmouth and Jefferson. Emory and Queen's (Canada), which in the past did not admit women, now report 1 and 4 women students respectively.

Women students in the United States numbered 1,176 as compared with 22,353 men. In Canada there were 203 women and 2,760 men students. In the 1 medical college for women there were 140 students and 21 graduates. Nine schools, including 2 in Canada, enrolled more than 30 women. There were 74 at Toronto and 39 each at Illinois and at New York Medical College.

There were 267 women graduates from 66 of the 78 four year medical schools. In the United States there were 239 women graduates and 4,895 men. In Canada there were 28 women graduates and 495 men.

Table 21 shows the distribution of students and graduates by sex for a period of nine years. The percentages of women medical students and graduates in the United States since 1905 are shown in table 22. For the academic session commencing with the first class entering in 1943, the percentage enrolment (5.0

TABLE 20.—Distribution by Sex

	Students		Graduates	
	Men	Women	Men	Women
University of Alabama.....	105	3	0	0
University of Arkansas.....	273	6	59	1
University of California.....	250	32	53	7
College of Medical Evangelists.....	313	22	66	1
University of Southern California.....	230	8	49	0
Stanford University.....	231	11	54	2
University of Colorado.....	220	15	51	5
Yale University (Connecticut).....	206	17	44	5
Georgetown University (Dist. of Columbia).....	318	0	63	0
George Washington University.....	275	19	62	3
Howard University.....	245	12	46	2
Emory University (Georgia).....	238	1	50	0
University of Georgia.....	250	9	44	1
Loyola University (Illinois).....	298	14	67	3
Northwestern University.....	576	14	155	6
University of Chicago, The School of Med.....	260	11	71	1
University of Illinois.....	637	39	151	7
Indiana University.....	491	15	118	6
State University of Iowa.....	297	20	61	3
University of Kansas.....	314	16	83	0
University of Louisville (Kentucky).....	355	8	86	2
Louisiana State University.....	321	18	77	2
Tulane University of Louisiana.....	513	16	115	4
Johns Hopkins University (Maryland).....	262	33	61	8
University of Maryland.....	351	20	85	5
Boston University (Massachusetts).....	231	17	40	6
Harvard Medical School.....	526	0	131	1
Tufts College.....	398	16	96	2
University of Michigan.....	506	29	117	1
Wayne University.....	253	12	55	3
University of Minnesota.....	467	27	98	10
University of Mississippi.....	51	4	0	0
University of Missouri.....	77	3	0	0
St. Louis University.....	477	0	107	0
Washington University.....	375	22	102	8
Creighton University (Nebraska).....	247	10	58	1
University of Nebraska.....	332	8	71	2
Dartmouth Med. School (New Hampshire).....	48	0	0	0
Albany Medical College (New York).....	150	20	32	6
Long Island College of Medicine.....	391	22	84	7
University of Buffalo.....	281	14	57	4
Columbia University.....	442	24	102	6
Cornell University.....	306	13	70	5
New York Medical College.....	334	39	74	9
New York University.....	483	38	110	11
University of Rochester.....	246	11	62	1
Syracuse University.....	185	9	37	1
University of North Carolina.....	38	3	0	0
Duke University.....	275	11	58	2
Bowman Gray School of Medicine.....	158	3	27	0
University of North Dakota.....	55	2	0	0
University of Cincinnati (Ohio).....	396	19	69	5
Western Reserve University.....	307	10	66	0
Ohio State University.....	289	10	66	2
University of Oklahoma.....	239	13	49	2
University of Oregon.....	277	7	62	1
Hahnemann Medical College (Pennsylvania).....	496	25	115	0
Jefferson Medical College.....	570	0	133	0
Temple University.....	438	30	105	12
University of Pennsylvania.....	497	20	125	5
Woman's Medical College.....	0	140	0	21
University of Pittsburgh.....	312	14	80	1
Medical College of South Carolina.....	183	5	41	2
University of South Dakota.....	43	1	0	0
University of Tennessee.....	551	14	82	0
Meharry Medical College.....	238	12	60	2
Vanderbilt University.....	199	7	48	1
Southwestern Medical College (Texas).....	261	9	59	2
Baylor University.....	125	4	15	1
University of Texas.....	378	23	81	3
University of Utah.....	122	4	0	0
University of Vermont.....	132	10	30	3
University of Virginia.....	255	9	49	5
Medical College of Virginia.....	289	22	67	7
West Virginia University.....	52	3	0	0
University of Wisconsin.....	240	25	55	2
Marquette University.....	313	4	63	2
University of Alberta (Canada).....	136	15	22	3
University of Manitoba.....	208	21	58	3
Dalhousie University.....	164	5	36	0
Queen's University.....	268	4	43	4
University of Western Ontario.....	184	17	28	3
University of Toronto.....	698	74	99	8
McGill University.....	377	32	93	4
University of Montreal.....	282	16	50	2
Laval University.....	402	11	58	1
University of Saskatchewan.....	41	5	0	0
Totals.....	25,113	1,379	5,390	267

per cent) was somewhat less than in the preceding year (5.1 per cent), and the percentage of graduates (4.7 per cent) was somewhat higher than in the preceding year (4.6 per cent).

We may expect increases in the enrolment of women in the next entering classes, with the current limitations on the supply of qualified men. However, it is not apparent that there is a large reservoir of qualified women students interested in and prepared to study medicine. The ratio of women applicants to women accepted in medical schools has been about the same as the ratio for men. Should schools determine to admit a considerably larger proportion of women in the future, they would probably be unable to do so without accepting students with qualifications inferior to those required in the past from either men or women.

LOAN FUNDS AND SCHOLARSHIPS

Since over 85 per cent of the students in medical schools are now being financed under the Army and Navy programs, the need for student loans and scholarships has been greatly reduced. At the present time needy and deserving civilian students can probably be adequately provided for locally. In many instances university and college funds for these purposes have

TABLE 21.—Distribution by Sex in the United States and Canada, 1936-1944

Year	Students		Graduates	
	Male	Female	Male	Female
1935-1936.....	24,219	1,254	5,388	268
1936-1937.....	23,787	1,244	5,024	261
1937-1938.....	23,234	1,307	5,439	252
1938-1939.....	22,919	1,293	5,290	285
1939-1940.....	22,903	1,291	5,430	273
1940-1941.....	22,853	1,308	5,527	310
1941-1942.....	23,551	1,333	5,397	305
1942-1943.....	24,183	1,317	5,450	271
1943-1944.....	25,113	1,379	5,390	267

accumulated from lack of demand for them. Such funds should be carefully conserved, because of the likelihood that there will soon be a higher percentage of civilians in our medical schools. Since the accelerated program must be continued to fulfil Army and Navy agreements, financial hardships may be encountered by civilians. There may again occur the need for special sources of aid similar to that provided in the past by the generous grants of the W. K. Kellogg Foundation and by government loans.

PART TIME, SPECIAL AND GRADUATE STUDENTS

Students in these categories, shown in table 23, are included in none of the preceding tabulations. Part time students (72, in 18 schools of the United States and Canada) were about as many as a year ago, although that number represented a substantial decrease below peacetime numbers.

Special students include those carrying work in such fields as public health, physicians reviewing for specialty board examinations and students preparing to become physical therapists or laboratory technicians. Curricula in these and other fields may involve some work in the medical school. There were 167 such students in this category reported from 30 schools during the academic session here reported. This compares with 190 in the preceding year and 416 in the year before that.

There were 211 students not candidates for the medical degree pursuing medical subjects in 16 medical

schools in the United States and Canada. The preceding year saw 434 such students enrolled. In general, these are graduate students seeking a higher degree other than the M.D.

The reduction in numbers of students in these groups is due to the war. We may look forward to the time

TABLE 22.—Women in Medicine in the United States

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905.....	1,073	4.1	219	4.0
1910.....	907	4.0	116	2.6
1915.....	592	4.0	92	2.6
1920.....	818	5.3	123	4.0
1925.....	910	5.0	204	5.1
1926.....	935	5.0	212	5.4
1927.....	964	4.9	189	4.7
1928.....	929	4.5	207	4.9
1929.....	925	4.4	214	4.8
1930.....	955	4.4	204	4.5
1931.....	990	4.5	217	4.6
1932.....	955	4.3	203	4.2
1933.....	1,056	4.7	214	4.4
1934.....	1,020	4.5	211	4.2
1935.....	1,077	4.7	207	4.1
1936.....	1,133	5.0	246	4.7
1937.....	1,113	5.1	238	4.4
1938.....	1,161	5.4	237	4.6
1939.....	1,144	5.4	260	5.1
1940.....	1,145	5.4	253	5.0
1941.....	1,146	5.4	280	5.3
1942.....	1,164	5.3	279	5.4
1943.....	1,150	5.1	241	4.6
1944.....	1,176	5.0	239	4.7

TABLE 23.—Part Time, Special and Graduate Students During the First Session Commencing in 1943

	Part Time	Special	Graduate
University of Alabama.....	3	..	..
University of Arkansas.....	..	4	..
University of California.....	..	2	18
University of Georgia.....	5	..	..
Loyola University.....	..	9	..
Northwestern University.....	..	50	82
University of Chicago.....	..	4	..
Indiana University.....	3	..	..
University of Kansas.....	8	3	..
Tulane University.....	..	2	..
Johns Hopkins University.....	10	11	4
University of Michigan.....	9	0	..
Wayne University.....	1	..	..
University of Mississippi.....	3	..	..
University of Missouri.....	..	2	..
University of Nebraska.....	..	..	5
Columbia University.....	..	5	24
New York Medical College.....	..	10	7
New York University.....	..	3	2
University of Buffalo.....	3	1	..
University of Rochester.....	..	1	..
Bowman Gray School of Medicine.....	4	1	..
University of Cincinnati.....	..	2	..
Western Reserve University.....	..	1	..
University of Oklahoma.....	3	2	3
University of Oregon.....	..	3	0
University of Pittsburgh.....	8	..	..
Woman's Medical College.....	2	1	1
University of South Dakota.....	3	0	..
Meharry Medical College.....	..	1	21
University of Tennessee.....	..	27	4
Vanderbilt University.....	1	..	..
Baylor University.....	..	2	..
Southwestern Medical College.....	2	1	..
University of Texas.....	..	1	1
University of Virginia.....	..	1	2
McGill University.....	1	..	..
University of Manitoba.....	..	1	1
University of Toronto.....	3	..	20
University of Western Ontario.....	..	4	..
Total.....	72	167	211

when graduate students taking medical courses will increase in numbers and when substantial numbers of qualified medical students will desire and be able to carry a part time medical course while working toward a higher degree in one of the biologic sciences.

GRADUATES WITH BACCALAUREATE DEGREES

At the present time no school in the United States requires a degree for admission. In Canada, Montreal and Laval have this requirement. In 1945 three schools (Vanderbilt, Montreal and Laval) will require a degree

TABLE 24.—*Graduates with Baccalaureate Degrees*

	Graduates	Degrees
University of Arkansas.....	60	23
University of California.....	65	63
College of Medical Evangelists.....	67	40
University of Southern California.....	49	38
Stanford University.....	56	56
University of Colorado.....	56	53
Yale University (Connecticut).....	49	49
Georgetown University (District of Columbia).....	63	61
George Washington University.....	65	13
Howard University.....	48	42
Emory University (Georgia).....	50	40
University of Georgia.....	47	42
Loyola University (Illinois).....	70	42
Northwestern University.....	161	125
University of Chicago, The School of Medicine.....	72	71
University of Illinois.....	161	84
Indiana University.....	124	57
State University of Iowa.....	64	36
University of Kansas.....	83	81
University of Louisville (Kentucky).....	88	62
Louisiana State University.....	79	69
Tulane University of Louisiana.....	119	95
Johns Hopkins University (Maryland).....	69	69
University of Maryland.....	90	63
Boston University (Massachusetts).....	46	43
Harvard Medical School.....	132	129
Tufts College.....	98	95
University of Michigan.....	118	100
Wayne University.....	58	56
University of Minnesota.....	108	108
St. Louis University (Missouri).....	107	99
Washington University.....	110	101
Crelghton University (Nebraska).....	59	31
University of Nebraska.....	73	17
Albany Medical College (New York).....	38	38
Long Island College of Medicine.....	91	80
University of Buffalo.....	61	34
Columbia University.....	108	102
Cornell University.....	75	60
New York Medical College.....	83	76
New York University.....	121	114
University of Rochester.....	63	55
Syracuse University.....	38	35
Duke University (North Carolina).....	60	46
Bowman Gray School of Medicine.....	27	16
University of Cincinnati (Ohio).....	74	23
Western Reserve University.....	66	66
Ohio State University.....	68	66
University of Oklahoma.....	51	34
University of Oregon.....	63	63
Hahnemann Medical College (Pennsylvania).....	115	104
Jefferson Medical College.....	133	133
Temple University.....	117	107
University of Pennsylvania.....	130	128
Woman's Medical College.....	21	19
University of Pittsburgh.....	81	72
Medical College of South Carolina.....	43	4
University of Tennessee.....	82	59
Meharry Medical College.....	62	56
Vanderbilt University.....	49	48
Southwestern Medical College (Texas).....	61	45
Baylor University.....	16	13
University of Texas.....	87	51
University of Vermont.....	33	32
University of Virginia.....	54	37
Medical College of Virginia.....	74	66
University of Wisconsin.....	57	27
Marquette University.....	70	39
University of Alberta (Canada).....	35	17
University of Manitoba.....	61	24
Dalhousie University.....	36	16
Queen's University.....	17	15
University of Western Ontario.....	31	2
University of Toronto.....	107	33
McGill University.....	97	78
University of Montreal.....	52	48
Laval University.....	57	56
Totals.....	5,657	4,420

from civilian applicants. Three schools (Kansas, Oregon and Dartmouth) required the student to earn a bachelor's degree during the first year in medical school. Yet 75 per cent of all the graduates from 77 four year schools in the United States and Canada also held baccalaureate degrees, as shown in table 24. This does not include those earning the B.S. in Medicine, who are presented in the next section.

In the United States 4,131 (or 80 per cent) of the 5,134 medical graduates also held bachelor's degrees, and in Canada 289 (or 55 per cent) of the 523 medical graduates also held the additional degree. All the graduates of the following eight schools held both degrees: Stanford, Yale, Johns Hopkins, Minnesota, Albany, Western Reserve, Oregon and Jefferson.

GRADUATES WITH THE B.S. IN MEDICINE

Certain graduates of 30 medical schools in the United States and of 3 of the medical schools in Canada received the Bachelor of Science degree in Medicine. There were 450 such degrees awarded in the United States and 7 in Canada, a total of 457. The largest single group to receive the degree were 87 graduates of the University of Illinois. Indiana awarded 64 and Cincinnati 41. Other schools granted fewer than 34 and 21 schools less than 10 each.

TABLE 25.—*Fees, First Session Entering in 1943*

	Number of Schools
Under \$99.....	0
\$100 to 199.....	8
200 to 299.....	29
300 to 399.....	14
400 to 499.....	17
500 or over.....	25
Total.....	57

FEES

The eighty-seven medical and basic science schools in the United States and Canada have been arranged in five groups in table 25 according to the tuition fees charged resident students for the first academic session commencing in 1943. The data are based on the average tuition fee charged for the complete medical course and includes such minor charges as those for matriculation, breakage, diploma and graduation.

There is a continuous upward trend in tuition fees. No school now charges less than \$100 for the year. The average resident fees charged by medical schools in the United States in the past five years, ending with the first academic session starting in 1943, have been \$378, \$386, \$395, \$407 and \$409.

Thirty-four schools in the United States and 6 in Canada make an additional charge for nonresidents. The Army and Navy pay nonresident fees for their students. These sums vary considerably in amount. Toronto charges \$5 for first year students and \$10 for others. Five schools charge \$50 or less annually. Four schools (Georgia, Indiana, Louisiana State and Dartmouth) have an annual nonresident fee of \$400 or more. Dartmouth charges \$460 annually, the highest fee for nonresidents.

INTERNSHIPS AND RESIDENCIES

POSTWAR GRADUATE TRAINING

One of the major responsibilities of the medical profession today is the development of adequate facilities and opportunities for the advanced training of physicians returning from military service. Anticipating this need, the Council on Medical Education and Hospitals began more than a year ago to make a careful investigation of the educational facilities in the graduate and postgraduate fields. Nearly 1,300 institutions and agencies, including medical schools, hospitals, departments of health, state medical associations and specialty boards, were requested to furnish information regarding training programs now available or under consideration in relation to possible postwar needs. The response was encouraging, for it showed constructive planning already under way and also an earnest desire on the part of all groups concerned to cooperate to the fullest extent in meeting whatever demands the future may impose. A preliminary report on this study was published in *THE JOURNAL*, Jan. 1, 1944.

It is recognized that various kinds of training programs will be required, such as refresher and review courses, graduate lectures and clinics, continuation internships, hospital residencies, fellowships, basic medical science studies, individual preceptorships, graduate externships and perhaps other forms. The probable demand for postwar training is not yet fully known, but this question is now being studied by the Committee on Postwar Medical Service working in collaboration with the Surgeons General of the Army, Navy and Public Health Service. An analysis of the initial survey involving 3,000 medical officers was published in *THE JOURNAL*, June 24, 1944. A further report appears in the present issue of *THE JOURNAL*, page 1099.

These studies of the postwar educational desires of medical officers will facilitate further intelligent planning in the development and organization of suitable training programs. The Council in cooperation with the Committee on Postwar Medical Service and the examining boards in medical specialties will continue its activities in the field of postwar graduate medical education and will prepare, as soon as possible, a list of all available educational opportunities designed to meet the needs of returning medical officers.

NECROPSY PERFORMANCE

Under the present accelerated program of medical education it is particularly essential that all requirements of the internship be fulfilled so that young physicians may receive adequate preparation for civilian and military service. It has long been recognized that one of the most important functions in the training of interns is the correlation of clinical and pathologic studies. Any deficiency in pathologic material, therefore, will seriously impair the quality of house staff instruction.

The success of a necropsy program will in the final analysis depend on the whole hearted cooperation of the medical staff, interns and resident physicians, administrative officers and other hospital personnel. It is important that a necropsy study be requested on all hospital deaths, both private and ward, for each service should contribute its proportionate share to the educational program. The individual departments should likewise furnish a minimum of 15 per cent, so that a well balanced supply of pathologic material may be available

for teaching. If one service fails to provide the requisite amount, an added burden must necessarily be placed on other departments if a satisfactory rate is to be accomplished for the hospital as a whole. To insure that postmortem examinations are requested on all deaths, it is suggested that house officers be required in each instance to file a report in the superintendent's office containing either a signed permit or a notation why the necropsy could not be obtained. This procedure has been extremely helpful in many hospitals, for it creates further interest among the medical staff and serves to stimulate the interns and residents to greater effort.

The Council is cognizant of the many difficulties confronting hospitals at the present time, yet its responsibility in the maintenance of educational standards is such that it cannot justifiably continue the approval of intern training programs that are unable in a reasonable length of time to correct deficiencies in necropsy performance. It is strongly urged, therefore, that hospitals with low necropsy rates should immediately exert every effort to obtain sufficient material for instruction. The ratio of necropsies, it should be noted, has long been regarded as a reliable index of the quality of educational service in hospitals.

LATIN AMERICAN PHYSICIANS

The Council is deeply interested in the development of educational opportunities for Latin American physicians, who are coming to this country in increasing numbers for graduate training. The decline of learning and science, including medical education, in Europe during the war will tend to increase the importance of the United States as a center for advanced training for years to come. Thus we may expect a continual increase in the number of Latin American physicians who will be seeking further training in the schools and hospitals of the United States. This tendency deserves the full support of the medical profession in this country, which will share in a mutually beneficial exchange of ideas and the cementing of lasting inter-American friendships.

A study is now being made by the Council to determine the number of Latin American physicians currently in training in the United States, the type of training involved and the extent to which educational facilities in hospitals may need to be expanded to meet possible future needs. Qualified medical graduates of Latin American schools may from the Council's point of view serve as interns and resident physicians in approved hospitals. To assist such applicants in obtaining suitable appointments, lists of available internships and residencies will be prepared and will also be furnished to the various agencies that are interested in the training of medical personnel from the other American republics. The Council has already established contacts with the following Washington agencies: the Institute of International Education, the Division of Science, Education and Art of the State Department, the Office of the Coordinator of Inter-American Affairs and the Pan American Sanitary Bureau.

The Directing Board of the Procurement and Assignment Service has announced that graduates of Latin American schools will not be counted in hospital quotas. This ruling should do much to facilitate the appointment of Latin American physicians and thus help to establish a wider scope of hospital training in the United States.

THE 9-9-9 PROGRAM

On Jan. 1, 1944 the Procurement and Assignment Service instituted the 9-9-9 plan of internships, assistant residencies and residencies. This program created an internship of nine months duration for medical graduates holding a reserve commission, an assistant residency of nine additional months for one third of the group and a further residency of nine months available to one half of the commissioned officers receiving assistant residency training. The purpose of this plan was to provide a more equitable distribution of house officers in the interest of civilian hospital care, to insure the maintenance of at least a partial house staff at the assistant residency and residency levels and to create a more rapid supply of young medical officers for the armed forces than would be available under a twelve months internship with no further deferments for reserve officers.

In the allocation of interns and resident physicians, state quotas were established, individual hospitals receiving approximately 60 per cent of the number of house officers actually on duty in 1940. Allowances were made, however, for increased patient loads, teaching obligations and other significant factors. The state office of the Procurement and Assignment Service was permitted to make certain minor adjustments as warranted in individual cases, but otherwise the hospitals were expected to follow the quotas originally assigned for the nine months period.

The Council on Medical Education and Hospitals was asked by the Procurement and Assignment Service to act as a clearing house for hospitals with unfilled quotas and for interns and residents seeking hospital appointments. In accordance with this request, lists of hospitals needing interns and resident physicians have been published in THE JOURNAL at weekly intervals since November 1943. This service has been effective in meeting the needs of many institutions and applicants and will be continued as a means of assisting hospitals and medical graduates in obtaining house staff appointments.

The 9-9-9 program cannot be defended on purely educational grounds, yet it was the only method of deferment of commissioned officers as assistant residents and residents on which agreement could be reached. The only alternative was the continuance of the twelve months internship without any opportunity of further deferment. This was considered less desirable, for it had already been shown that under the accelerated program of medical education graduations every nine months integrated poorly with the one year internship. As a result, wasteful overlaps occurred during which the educational returns to the house officer were minimal. After considering the advantages and disadvantages and weighing the possible alternatives, it is recognized that the 9-9-9 program is the best available plan under present wartime conditions. Being created only as a war emergency measure, it should be discontinued as soon as conditions will permit the reestablishment of the regular training programs.

APPROVED INTERNSHIPS AND RESIDENCIES

In the standardization and approval of hospitals, the Council is primarily concerned with the development of high grade educational services for the continued training of medical graduates. The main consideration in this work is the organization of training programs in full compliance with the standards of the Council. It is also essential that a sufficient number of approved

TABLE 26.—Civilian Hospitals Approved for Internships—1944

	Number of Hospitals	Internships Reported	Interns on Duty (Jan.)
Alabama.....	5	31	31
Arizona.....	2	6	5
Arkansas.....	3	18	11
California.....	37	335	374
Colorado.....	9	51	59
Connecticut.....	18	124	91
Delaware.....	4	17	20
District of Columbia.....	9	83	79
Florida.....	6	28	26
Georgia.....	9	64	53
Illinois.....	56	445	434
Indiana.....	15	100	99
Iowa.....	9	30	35
Kansas.....	7	29	26
Kentucky.....	8	33	29
Louisiana.....	11	132	153
Maine.....	3	12	11
Maryland.....	16	180	151
Massachusetts.....	33	312	273
Michigan.....	29	237	231
Minnesota.....	13	95	107
Missouri.....	24	205	185
Montana.....	2	4	2
Nebraska.....	9	33	27
New Hampshire.....	1	8	8
New Jersey.....	39	257	183
New York.....	102	1,057	1,040
North Carolina.....	8	75	76
North Dakota.....	1	3	...
Ohio.....	40	274	245
Oklahoma.....	5	30	26
Oregon.....	5	43	38
Pennsylvania.....	78	536	487
Rhode Island.....	4	35	20
South Carolina.....	1	12	20
Tennessee.....	10	98	86
Texas.....	19	166	110
Utah.....	5	24	25
Vermont.....	2	5	4
Virginia.....	10	64	63
Washington.....	11	54	62
West Virginia.....	7	22	23
Wisconsin.....	20	95	101
Totals.....	710	5,438	5,170

TABLE 27.—Classification of Approved Residencies—1944

(Civilian hospitals only)

Specialty	Assistant Resi- dencies Offered	Resi- dencies Offered ¹	Total Resi- dencies ²	Number of Hospitals
Anesthesiology.....	40	61	101	45
.....	1	3	4	7
.....	15	29	54	13
Dermatology and syphilology.....	21	54	75	35
Epilepsy.....	..	1	1	1
Fractures.....	6	7	13	5
Gynecology.....	24	19	43	29
Malignant diseases.....	16	54	70	17
Medicine.....	265	495	860	243
Mixed.....	45	77	122	74
.....	29	29	58	31
.....	12	33	45	31
Obstetrics.....	50	75	125	59
Obstetrics and gynecology.....	166	202	368	107
Ophthalmology.....	44	126	170	57
Ophthalmology and otolaryngology.....	38	77	115	40
Orthopedics.....	60	155	215	87
Otolaryngology.....	61	115	176	74
Pathology.....	64	169	233	185
Pediatrics.....	206	213	419	124
Physical medicine.....	..	3	3	3
Plastic surgery.....	1	5	6	4
Psychiatry.....	119	320	445	123
Radiology.....	72	122	194	150
Surgery.....	331	528	1,059	287
Thoracic surgery.....	13	23	36	20
Traumatic surgery.....	..	1	1	2
Tuberculosis.....	66	174	240	95
Urology.....	53	84	137	79
Totals.....	2,123	3,270	5,393	..

1. Includes fellowships.

2. This total is not a complete report of available peacetime facilities, since some hospitals failed to report residencies temporarily discontinued under the present quota system.

* Number of hospitals approved for residency training, 675.

services be available so that all applicants may have an opportunity to obtain acceptable hospital training.

With the steady increase in number of approved intern hospitals, the question has arisen whether the Council is approving more internships than is warranted by the demand for them in normal times. This appears not to be the case.

The peacetime requirements can best be understood in relation to the growth and development of internships since 1914, when the first list of approved hospitals was published by the American Medical Association. In that year there were 508 general hospitals approved, 2,667 internships available and 3,594 medical graduates. Not until 1926, when 4,727 internships and 3,962 medical graduates were reported, did hospital facilities begin to exceed the number of students graduating each year. By 1941, however, the internships had reached a total of 8,100, whereas the number of graduates was only 5,200.

While it would seem that the shortage of house officers in recent years might be attributed mainly to this apparent overproduction of available internships, it should be noted that under ordinary conditions the size of the graduating class does not determine the number of interns engaged in hospital service. In 1939, for example, when there were 5,089 medical graduates in the United States, the approved hospitals reported 7,765 internships and 7,448 interns actually on duty. This represents a ratio of interns to medical graduates of 1.46 to 1. If the available internships are compared with the number of interns, a proportion of 1.04:1 is obtained. The corresponding ratios for 1940 are 1.5:1 and 1.04:1. This indicates that under normal conditions it is necessary to provide internships far in excess of the number of students graduating each year. In the two years cited, the annual number of interns

equaled approximately one and one-half times the number of medical graduates in the United States.

At the present time there are 710 civilian hospitals approved for intern training, which report a total of 5,438 internships. In January the approved hospitals had 5,170 interns on duty, as shown in table 26.

Included in the intern list of 1914 were 95 special hospitals, which could accommodate 428 applicants. This classification of special services was continued until 1927, when a separate residency list was established by the Council. The first list contained the names of 278 hospitals, which reported a total of 1,776 residencies. Since 1927, however, the facilities for specialized hospital training have more than tripled in number. This indicates not only a growing professional interest in specialization but also an evident desire on the part of hospitals to assist in the advanced training of young physicians. The highest number of available residencies was apparently reached in January 1943, when a total of 5,796 positions were listed in 722 approved hospitals. These included 1,762 assistant residencies, 3,323 residencies and 711 fellowships.

Under the new quota system many of the residencies have been discontinued, but these will no doubt be reestablished as soon as conditions again become favorable. Additional training programs will also be organized in relation to postwar needs, as previously mentioned in this report. From reports received early this year, it has been calculated that a total of 5,393 residencies, assistant residencies and fellowships are available in the civilian hospitals approved for residency training. This figure relates to normal peacetime resident requirements but should not be regarded as a complete report, since many of the hospitals did not include the residencies that have recently been discontinued. A classification of residencies by types of service is shown in table 27.

GRADUATE CONTINUATION COURSES FOR PRACTICING PHYSICIANS

The necessity for continuation courses of study in the medical specialties has never been more urgent than at the present time. Physicians in civilian practice have been compelled to enlarge their field of activity and to refresh their knowledge of the intricacies of modern diagnosis and treatment. Physicians in military service and returning medical officers are also encountering problems. The demand for all means of instruction is greater than it has ever been. Medical educators and interested agencies throughout the country are attempting to assist physicians called on to assume new responsibilities by offering refresher courses or continuation courses and by the presentation of scientific papers or lectures on timely subjects. These individuals, who will give or have given so generously of their time to participate in the instructional programs, constitute a large and distinguished faculty of medicine. The efforts of individual physicians with their increasing personal responsibilities and institutions and other agencies with greatly depleted staffs to assist in the presentation of these opportunities is noteworthy.

The Council on Medical Education and Hospitals publishes semiannually advance information concerning postgraduate continuation courses for practicing physicians. These include courses in a wide variety of fields in clinical medicine and the basic sciences. The courses are for variable periods from a few days to several

months. Some are concentrated full time courses and others are part time. In *THE JOURNAL* for July 8, 1944 there were listed 331 such courses available during the latter half of the current year. The opportunities listed are offered by hospitals, medical schools, graduate medical schools or other agencies in twenty-six states and include thirty-eight specialty or subspecialty subjects. Institutions offering continuation courses are invited to announce such courses in these semiannual lists compiled by the Council.

In the following paragraphs mention is made of some of the recent and noteworthy developments in graduate education. An analysis of the courses offered during the period July 1, 1943 to June 30, 1944 is also presented.

RECENT DEVELOPMENTS

The United States Public Health Service is planning to offer a three weeks course at Hot Springs National Park, Arkansas, in the management and control of the venereal diseases. Also under the auspices of the Public Health Service 15 to 20 physicians are appointed to traineeships in the diagnosis and treatment of cancer. Appointments are for one year. If satisfactory progress has been made, a trainee may be appointed for a second year and again for a third year. Trainees receive a stipend of \$6 a day.

The fifteenth annual postgraduate symposium on heart disease will be given in California in November at the Los Angeles County Hospital. This symposium is sponsored by the Los Angeles Heart Association and the Los Angeles Tuberculosis and Health Association.

The staff of the Georgia Warm Springs Foundation is again offering to practicing physicians a five day course in the treatment of acute and convalescent poliomyelitis sponsored by the Post Graduate School of Physical Therapy of the foundation through a grant from the National Foundation for Infantile Paralysis.

The Institute for Psychoanalysis, Chicago, together with the University of Illinois, has developed a course in psychosomatic medicine which will be offered during the coming fall quarter and will be available to physicians, interns and residents. No fee will be charged.

The twenty-ninth annual postgraduate medical teaching venture sponsored by the Inter-State Postgraduate Medical Association of North America will be held in Chicago, Oct. 17-20, 1944. The sponsoring agencies this year are the Illinois State Medical Society and the Chicago Medical Society. The Chicago hospitals, clinics and medical schools will furnish clinical material.

An intensive two weeks postgraduate course in obstetrics consisting of lectures, laboratory methods, bedside instruction and observation of complicated deliveries is offered four times during the school year by Indiana University School of Medicine.

Two refresher courses in obstetrics, each of two weeks' duration, will be given at Louisiana State University School of Medicine sponsored by the Louisiana State Board of Health. The courses are financed from Social Security funds allocated by the Children's Bureau, U. S. Department of Labor.

The University of Michigan School of Public Health will give courses in tropical diseases, industrial health and public health economics. Eight months' academic and field training is offered continuously. The School of Public Health, in cooperation with field facilities provided by the W. K. Kellogg Foundation, the Michigan State Department of Health, the Detroit Department of Health, the General Motors Corporation, the Chrysler Corporation, the Ford Motor Company and other organizations in nearby communities, is also prepared at all times to give special instruction in all phases of public health practice.

No hospital clinics were given by the Kansas City Southwest Clinical Society during the past year. However, a series of lectures and symposiums will be held in affiliation with the University of Kansas School of Medicine.

A ten weeks intensive course in venereal diseases for practicing physicians is given continuously at the Bureau of Social Hygiene by the New York State Department of Health in cooperation with the United States Public Health Service. This course involves every phase of the clinical and public health aspects of venereal diseases.

The New York Academy of Medicine's Annual Fortnight will be devoted to "Infections and Their Treatment." Special emphasis will be placed on the more recent chemotherapeutic agents.

Courses in public health and related fields for one quarter are offered by the University of North Carolina School of Public Health in cooperation with the United States Public Health Service, the Children's Bureau, the Reynold's Foundation and the Rockefeller Foundation.

Duke University's contribution to postgraduate work consists of internships from one to two weeks for physi-

cians in practice. Graduates are invited to the various clinics in medicine, surgery, obstetrics and other specialties and the clinical pathologic conferences held weekly.

The Ohio State Medical Association holds annually a forum on allergy. During the present year it is beginning a series of lectures planned to run for five years, at which it is planned to have lectures on the fundamentals of allergy.

A course in caudal analgesia of one week is offered by the Philadelphia Lying-In Hospital subsidized by the United States Public Health Service.

The Pennsylvania Department of Health, Division of Health Education, and collaborating agencies, are sponsoring a series of health institutes throughout the state to discuss wartime health problems of the commonwealth. Leaders of the medical, dental and nursing professions in Pennsylvania and nationally known public health experts have taken part in these institutes. The first regional health institute was held in Erie in November. At this first institute twenty-two agencies participated.

Postgraduate courses are offered continuously throughout the year in Tennessee. The state is divided into ten districts, and the instructor circulates in the district for a period of ten weeks. This development is sponsored by the Tennessee State Medical Association. There are six centers in each district. At each center the instructor spends a day.

The University of Wisconsin offers opportunities for observation courses at the Wisconsin General Hospital, Madison. Physicians may come at any time for a period of from one to five months.

Refresher courses will again be offered by the American College of Physicians in the autumn of 1944. Such courses will be given in Illinois, Massachusetts, Minnesota, New York, Oregon and Pennsylvania.

The American Academy of Ophthalmology and Otolaryngology offers a home study course in ophthalmology or otolaryngology, or both, on the first of each month. The registrant is sent a selected list of reading on the topic of that month, which it is estimated should require one to two and one-half hours daily. On the last of each month a series of twenty questions on the reading of the past month is sent to each registrant. The answers are corrected, graded and returned to the registrant. These home study courses have been carried on for five years and have been oversubscribed every year. The value of these home study courses is recognized by the specialty boards, and registrants are recommended for residencies and candidates for board certification, although it is specifically understood that completion of the academy courses does not necessarily fulfil the requirements of the boards for fundamental training.

The value of refresher or continuation courses in the postwar plans of graduate education for returning medical officers is referred to in the analysis presented on page 1099 of this issue of *THE JOURNAL*.

The excellent opportunities outlined are mentioned to present the variability of the courses being offered throughout the country. *THE JOURNAL* for July 8, 1944 presents these and many others in detail. Mention should also be made of the systematic courses offered by organized graduate schools including Tulane, Hopkins, Harvard, Tufts, the Center for Continuation Study of the University of Minnesota, Buffalo, Columbia, the New York Polyclinic, the University of Pennsylvania and many others.

Systematic courses formerly given in many instances have been discontinued because of the war emergency, the shortage of teaching personnel and transportation difficulties. In other instances, however, new opportunities are being developed and further efforts are encouraged, since there is a real need for an equal geographic distribution of such opportunities.

ANALYSIS OF COURSES OFFERED IN 1943-1944

In presenting this analysis of graduate and postgraduate courses which have been offered during the annual period July 1, 1943 to July 1, 1944 the statistical summaries are divided into three groups: courses in which instruction was offered to physicians in or near their home communities, courses providing ample facilities for clinical instruction and, lastly, a group including clinical conferences, graduate assemblies, study courses and so forth.

Eight states (Illinois, Kansas, Massachusetts, Michigan, New York, Oklahoma, Tennessee and Wisconsin) provided opportunities for physicians to continue professional study in or near their home communities. These courses reached approximately sixty-seven centers within these states. Subjects of these courses included cardiology, chest diseases, general medicine, industrial medicine, military medicine, ophthalmology and otolaryngology, public health, surgical diagnosis, tropical diseases and venereal diseases. The War Sessions of the American College of Surgeons, consisting of a full day's program, were available in the winter and spring months in fifteen states.

Agencies which were active participants in providing these opportunities, either independently or jointly, included state and county medical societies in Illinois, Kansas, Massachusetts, Michigan, Oklahoma, Tennessee and Wisconsin, the two medical schools in Michigan, the University of Kansas, Albany Medical College, Vanderbilt University and the University of Tennessee. The state departments of health in Kansas, New York and Tennessee were active in cooperating in programs in those states. Other agencies included the Commonwealth Fund and the Horace H. and Mary A. Rackham Fund.

Sessions of one day were most common and consisted of both didactic and clinical instruction, didactic instruction being most commonly given. The facilities of hospitals, clinics and hotels were used for presentation of this type of instruction. The instructors for these extramural courses were chosen from physicians practicing in the state in which the courses were offered as well as from out of state men. The faculties of 11 medical schools made a large contribution to the teaching staff for these courses. No fee was charged in the majority of instances. The War Sessions of the American College of Surgeons attracted about 17,000 physicians. The attendance reported for other opportunities was 3,955.

In 1943 sixteen states offered this type of instruction in more than eighty centers, with an attendance of 4,500. Transportation and other difficulties greatly curtailed the sponsoring of these courses itinerant in nature, but while they were limited to eight states last year, exclusive of the war sessions of the American College of Surgeons, the increasing recognition of their value was evidenced in that 3,955 attended courses in sixty-seven centers in these eight states.

Two hundred physicians enrolled for the home study course conducted by the American Academy of Ophthalmology and Otolaryngology last year.

Altogether, opportunities were made available on general medical subjects in cities in or near their home communities to 20,955 physicians.

In centers where ample clinical facilities are available, 382 graduate courses of less than one year's duration were offered in nineteen states and the District of Columbia. These states and the number of courses which were given in each of these states during 1943-1944 are as follows:

Alabama	1	Michigan	24
California	14	Mississippi	1
District of Columbia	2	New Jersey	2
Georgia	1	New York	242
Illinois	24	North Carolina	1
Indiana	2	Ohio	2
Kansas	11	Pennsylvania	10
Kentucky	1	South Carolina	1
Louisiana	14	Texas	1
Massachusetts	26	Virginia	2

Seventy-seven agencies or combinations of agencies participated in the planning of the programs. Three graduate schools of medicine played the most prominent part in offering courses of this nature. Seventeen undergraduate medical schools have given such courses. Seven state medical societies independently or in collaboration with state health departments planned courses for physicians of the state. Six state health departments and four city or county medical societies made contributions. In eight instances hospitals were the agencies offering short periods of study. Other sponsors included thirteen special societies, the American College of Physicians, National Foundation for Infantile Paralysis, Institute for Psychoanalysis in Chicago, Rutgers University, American Institute for Psychoanalysis, Trudeau School of Tuberculosis, Horace H. and Mary A. Rackham Fund, Lillia Babbitt Hyde Foundation and the Commonwealth Fund. Government agencies included the United States Public Health Service, the office of the Surgeon General of the United States Army, the Federal Security Agency and the office of the Coordinator of Inter-American Affairs.

While the majority of the courses were in various subjects as the demand seemed apparent, specific courses in neurology and psychiatry were offered in fifty-three instances, ophthalmology in thirty-three, general medicine in twenty-seven, obstetrics and gynecology in twenty-three, general surgery in twenty-two, cardiovascular-renal diseases in nineteen, otolaryngology in eighteen, dermatology and syphilology in seventeen, electrocardiology and radiology fourteen each and gastroenterology in thirteen. Fewer than ten courses were offered in allergy, anatomy, anesthesia, arthritis, bronchoscopy, cystoscopy and endoscopy, chemistry, chest diseases, diabetes, electroencephalography, endocrinology, industrial medicine, internal medicine, hematology, infantile paralysis, legal medicine, nutrition, otorhinolaryngology, orthopedics, parasitology, pathology, pediatrics, physical therapy, physiology, plastic surgery, proctology, therapeutics, tropical medicine, urology, venereal disease control and war medicine.

The description of these intensive courses gave evidence that the type of instruction was both clinical and didactic. In presenting graduate courses medical school facilities were used for 194 courses, hospitals for 230 and clinics for 127. In many instances two or all three of these sources were used in presenting an individual course. Hotels and other facilities were used for 26 courses. The faculties of the medical schools served as instructors in 249 courses. Additional instructors were specialists in their fields chosen mainly from physicians residing within the state in which the course was given but including as well

physicians from outside the state. The duration of study in centers with clinical facilities varied from ten hours to one year. Many courses were of five days and one, two, four, six and eight weeks' duration as well as ten and twelve weeks and two months. Sixteen were courses of longer than three months, and one was a year's course. Courses were offered during every month last year and in thirty-eight instances they were arranged to suit the convenience of physician-students. Sixty-five courses were available for specialists only. Fees ranged from 50 cents to \$800. For seventeen courses no fee was charged, while in eight medical officers paid no fees or a nominal fee. The attendance reported for 364 of these courses was 8,888. Eighteen did not record attendance. This figure approximates that reported in 1943 for 440 similar courses.

Clinical conferences and graduate assemblies of less than five days were held in fourteen states and the District of Columbia as follows:

Colorado	New York
Connecticut	Ohio
District of Columbia	Pennsylvania
Illinois	South Carolina
Louisiana	Texas
Michigan	Virginia
Missouri	Wisconsin
Nebraska	

Thirty-one such opportunities were offered. This type of study was sponsored by four medical schools, six state medical societies, nine city or county medical societies, twenty-six special societies, one hospital and the United States Public Health Service. Study courses in a variety of subjects were offered. The assemblies were held in centers with facilities for clinical and practical work and for scientific exhibits. In addition the American College of Physicians held wartime regional meetings in a number of states. Instruction was both didactic and clinical. The instructors included physicians residing in the state where the assembly was held, physicians from other states and members of the professorial faculties of medical schools. One or more of these assemblies was given in every month last year. Registration fees ranged from no fee in fifteen instances to \$10. The total recorded attendance was 16,718. In 1943 the attendance for fifty-two such opportunities was 15,301.

For all three types of training offered during 1943-1944 the attendance was greater than the previous year,

when more individual opportunities were available throughout the country, indicating increasing recognition of this refresher type of training. Altogether 46,561 physicians were interested in some form of graduate education last year. This figure excludes physicians who were enrolled for courses of longer than a year's duration as well as those serving internships and residencies and physicians who attended the Wartime Graduate Medical Meetings.

WARTIME GRADUATE MEDICAL MEETINGS

Under the auspices of a committee representing the American Medical Association, the American College of Physicians and the American College of Surgeons, a series of Wartime Graduate Medical Meetings has been held. These programs have been organized for physicians in the Army, Navy and Public Health Service and for physicians in civilian life who are resident within reasonable traveling distance of the camps and hospitals in which these postgraduate opportunities are offered. For organizational purposes the country has been divided into twenty-four sections, and key committees of three men have been appointed in each section to carry on the details of the program. In order to insure the best results a group of qualified authorities has been designated to serve as national consultants in the various special fields. Likewise the Surgeon Generals of the Army, Navy and Public Health Service have appointed a committee of three, one man from each organization, to collaborate in the work of administration.

From July 1, 1943 to June 30, 1944 there have been 199 programs. Ninety-five of these were continuation courses in which meetings were held at the same installation at regular intervals. The total number of daily sessions of all wartime graduate medical meetings during this year was 952. Programs have been conducted in forty-one states and in Canada. Attendance has not been reported routinely, but it is estimated that well over 30,000 physicians have profited by these meetings. It is not possible to determine what proportion were military or civilian doctors. In the near future the committee in charge of the Wartime Graduate Medical Meetings will meet with the Committee on Postwar Medical Service to consider plans for the future, which will naturally depend on military events.

EXAMINING BOARDS IN THE MEDICAL SPECIALTIES

In 1933 the Council on Medical Education and Hospitals was instructed by the House of Delegates of the American Medical Association to formulate minimal essentials deemed necessary for certification as a specialist. Prior to 1934 there were five examining boards in the medical specialties functioning. Other boards were later organized, and since 1940 fifteen boards have been in operation. All these boards are fully approved by the Council.

The Council's "Essentials of Approved Examining Boards in Medical Specialties" outlines the type of organization and the responsibilities of such boards as well as the minimum qualifications deemed necessary for the certification of a specialist. Such qualifications

include graduation from an approved medical school, completion of an internship in a hospital approved by the Council, three additional years of special training in institutions approved by the Council and the board concerned, and a further period of two years devoted to specialty study and/or practice. Some boards require more than this minimum training. Each board has published a booklet containing a brief statement regarding its organization, personnel, purposes and requirements for certification. A statement of these requirements for each board was given in detail in the 1942 Educational Number of THE JOURNAL.

The Advisory Board for Medical Specialties was organized in 1933-1934 to coordinate graduate edu-

TABLE 28.—Approved Examining Boards in Medical Specialties

Key No.	Name of Board	Year of Incorporation	Total Certificates Awarded to	
			March 1, 1943	March 30, 1944
A. B. 1.	American Board of Pediatrics... Pres., Edward B. Shaw, 384 Post St., San Francisco, Calif. Sec., C. A. Aldrich, 115½ First Ave. S.W., Rochester, Minn.	1933	2,058	2,220
A. B. 2.	American Board of Psychiatry and Neurology... Act. Pres., Hans A. Reese, Wisconsin General Hospital, Madison, Wis. Sec., Walter Freeman, 1028 Connecticut Ave., N.W., Washington, D. C.	1934	1,536	1,716
A. B. 3.	American Board of Orthopaedic Surgery... Pres., Frank D. Dickson, 1400 Professional Bldg., Kansas City, Mo. Sec., Guy A. Caldwell, 3503 Prytania St., New Orleans, La.	1934	819	860
A. B. 4.	American Board of Dermatology and Syphilology... Pres., Howard Fox, 140 E. 54th St., New York City, N. Y. Sec., George M. Lewis, 121 E. 60th St., New York City, N. Y.	1932	644	680
A. B. 5.	American Board of Radiology... Pres., John W. Pierson, 1107 St. Paul St., Baltimore, Md. Sec., Byrl R. Kirklm, 102-110 Second Ave. S.W., Rochester, Minn.	1934	1,881	2,012
A. B. 6.	American Board of Urology... Acting Pres. and Sec., Gilbert J. Thomas, 1409 Willow St., Minneapolis, Minn.	1935	942	983
A. B. 7.	American Board of Obstetrics and Gynecology... Pres., W. T. Dannreuther, 380 Park Ave., New York City, N. Y. Sec., Paul Titus, 1015 Highland Bldg., Pittsburgh, Pa.	1930	1,656	1,764
A. B. 8.	American Board of Internal Medicine... Chairman, Reginald Fitz, 319 Longwood Ave., Boston, Mass. Asst. Sec., W. A. Werrell, 1301 University Ave., Madison, Wis.	1936	2,905	3,263
A. B. 9.	American Board of Pathology... Pres., Arthur H. Sanford, 102 Second Ave. S.W., Rochester, Minn. Sec., F. W. Hartman, Henry Ford Hospital, Detroit, Mich.	1936	954	1,012
A. B. 10.	American Board of Ophthalmology... Chairman, John Green, 3720 Washington Blvd., St. Louis, Mo. Sec., S. Judd Beach, 56 Irie Rd., Cape Cottage, Me.	1917	2,198	2,336
A. B. 11.	American Board of Otolaryngology... Pres., Harris P. Mosher, 127 Front St., Marblehead, Mass. Sec., Dean M. Lierle, University Hospital, Iowa City, Ia.	1924	3,570	3,737
A. B. 12.	American Board of Surgery... Chairman, Arthur W. Elting, 119 Washington Ave., Albany, N. Y. Sec., J. S. Rodman, 225 S. 15th St., Philadelphia, Pa.	1937	2,144	2,342
A. B. 13.	American Board of Anesthesiology... Pres., H. Boyd Stewart, 27th Place, Tulsa, Okla. Sec., Paul M. Wood, 745 Fifth Ave., New York City, N. Y.	1938	168	231
A. B. 14.	American Board of Plastic Surgery... Chairman, John S. Davis, 135 E. 65th St., Baltimore, Md. Sec., James B. Brown, 400 Metropolitan Bldg., St. Louis, Mo.	1937	154	160
A. B. 15.	American Board of Neurological Surgery... Chairman, Howard C. Naffziger, 384 Post St., San Francisco, Calif. Sec., Paul C. Bucy, 912 S. Wood St., Chicago, Ill. Advisory Board for Medical Specialties Pres., Willard C. Rappleye, 630 W. 168th St., New York City, N. Y. Sec., Byrl R. Kirklm, 102-110 Second Ave. S.W., Rochester, Minn.	1940	50	149
Totals.....			21,699	23,465

Certification in the subspecialties: By the American Board of Internal Medicine: allergy 71, cardiovascular disease 310, gastroenterology 149, tuberculosis 128, total 658. By the American Board of Surgery: proctology 70. Total certified in the subspecialties, 728. These figures are included in the above tabulation.

cation and certification of medical specialists in the United States and Canada. This board reports directly to its member groups and functions in close cooperation with the Council on Medical Education and Hospitals of the American Medical Association.

The American Board of Internal Medicine by special examination certifies specialists in allergy, cardiovascular disease, gastroenterology and tuberculosis. Similarly the American Board of Surgery certifies specialists in proctology. Regular board certification is a prerequisite for certification in the subspecialty.

A list of the Specialty Boards and their officers and the number of certificates awarded prior to March 1, 1943 and the number certified to March 30, 1944, respectively, appear in table 28. On March 1, 1943 there were 21,699 physicians certified by the fifteen specialty boards, and in the following year 1,766 were certified. On March 30, 1944 a total of 23,465 certificates had been issued.

Included in these figures are 728 who have been certified in the following subspecialties: allergy 71, cardiovascular disease 310, gastroenterology 149, proctology 70 and tuberculosis 128.

In internal medicine 3,263 have been certified and in general surgery 2,342. However, the greatest number in any one specialty certified was in otolaryngology. In this specialty 3,737 have received the board's certificate since the organization of this board in 1924. The board in ophthalmology, organized in 1917 and the oldest board in existence, has to date certified 2,336. There has been a tripling in the past year in the number certified in neurologic surgery, which was formulated in 1940 and is the last board organized.

A key number has been assigned to each approved specialty board, such as A. B. 1, and the biographic records of physicians published in the American Medical Directory include by this means reference to those certified by these boards.

The 9-9-9 program curtails the training of numbers of young physicians desiring specialty certification. Under this wartime program the various boards will probably allow credit for the actual time spent by the candidate in house officer training in approved hospitals.

The majority of the boards will grant some credit for military service which will compensate in part for the interruption of the graduate training of physicians by military exigencies. The policies adopted by the specialty boards vary considerably. One grants an indefinite amount of credit, to be determined by an evaluation of the experience of individual applicants. Another grants full credit for work done in the surgical division of a regularly constituted army or naval hospital. Most boards limit the credit allowed to one year of training and/or one year of experience. The special provisions for military medical credit made by each board were published in the 1943 Educational Number of THE JOURNAL.

Prospective applicants who are in military services should obtain a copy of the "Record of Professional Assignments for Prospective Applicants for Certification by Specialty Boards" from the secretary of any board. This booklet describes procedures pertaining to military credit and will enable prospective applicants and candidates to keep an accurate account of work done in the military service and will constitute part of the credentials to be submitted to the board on application for certification.

composed of 81 professors and 150 instructors, demonstrators and assistants, a total of 231. Sixty semester hours of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The fees average \$550 per academic year. The registration for 1943 was 294, graduates, 65. The present session began November 22, 1943 and will end September 19, 1944. The subsequent session will begin September 18, 1944. The Dean is Walter A. Bloedorn, M.D.

HOWARD UNIVERSITY COLLEGE OF MEDICINE, Fifth and W Streets, N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Coeducational since organization. Negro students compose a majority of those in attendance. The faculty comprises 37 professors and 64 instructors and assistants, a total of 101. The admission requirements are at least two years of collegiate work. The course covers four years of thirty-three weeks each. Under our present accelerated program this work can be completed in three calendar years. The fees are, respectively, \$269.00, \$269.00, \$259.00 and \$266.00. Registration for 1943-1944 was 257, graduates, 48. The curriculum was accelerated with the beginning class of September 1942. The present class was admitted March 23, 1944 and will end Dec. 22, 1944. The subsequent session will begin Dec. 28, 1944. The Dean is John W. Lawlah, M.D.

GEORGIA

Atlanta 3

EMORY UNIVERSITY SCHOOL OF MEDICINE, 50 Armstrong Street—Organized in 1854 as the Atlanta Medical College. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915, assumed present title in 1917. For civilian students three years of collegiate work are required for admission. Students in the armed services are admitted in accordance with regulations set up by them. The course of study is four academic years of thirty-two weeks each. By the use of the long summer vacation as a teaching quarter, the time required for the completion of these four academic years has been reduced from four to three calendar years. This is in line with the accelerated program adopted by most medical schools during the present emergency. The fees for each of the four academic years are \$400. The registration for 1943 was 239 graduates, 50. Classes this year began on Jan. 3, 1944 and will end Sept. 16, 1944. The subsequent session will begin Oct. 2, 1944. The Dean is Russell H. Oppenheimer, M.D.

Augusta

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE, University Place—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. After 1873 it was known as the Medical Department of the University of Georgia. On July 1, 1933, the name was changed to the University of Georgia School of Medicine. Property transferred to the University in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Coeducation was begun in 1920. The faculty includes 30 professors and 67 associate and assistant professors, instructors, lecturers and assistants, a total of 97. Of this number 17 are on military leave. Three years of collegiate work are required for admission (except that for the duration of the present war the minimum requirement will be two years). An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$225 per academic year for residents of Georgia, nonresidents, \$445. The registration for 1943 was 259, graduates, 45. The present session began January 3, 1944 and will end September 11, 1944. The subsequent session will begin September 27, 1944. The Dean is G. Lombard Kelly, M.D.

ILLINOIS

Chicago

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 South Wolcott Avenue—Organized in 1915 by acquisition of Bennett Medical College, which had been organized in 1869. Facilities enlarged upon by acquisition of Chicago College of Medicine and Surgery, faculties in basic medical sciences put on full time basis and present title assumed in 1917. Operated as an organic part of Loyola University. Coeducational since organization. The faculty is composed of 19 full time professors and 329 associate and assistant professors, associates, instructors and assistants, a total of 348. Sixty semester hours of collegiate work are required for admission. The fees average \$310.00 per academic year. The registration for 1943 was 312, graduates, 70. The present session began on January 10, 1944 and will end September 23, 1944. The subsequent session will begin October 2, 1944. The Dean is Italo F. Volini, M.D.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 303 East Chicago Avenue—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken. Became an integral part of Northwestern University in 1905. Coeducational since 1926. The faculty comprises

28 professors, 147 associate and assistant professors and 433 associates, instructors and clinical assistants, a total of 608. For the duration of the war the requirement for admission is two years of collegiate work. The B.S. in medicine degree may be conferred before the end of the senior year. An accelerated program has been adopted involving the acceptance of a class every nine months. A hospital internship is required for graduation. The total fees are \$414 each year. The registration for 1943 was 590, graduates, 161. The present session began December 28, 1943 and will end September 16, 1944. The subsequent session will begin September 27, 1944. The Dean is J. Roscoe Miller, M.D.

UNIVERSITY OF CHICAGO, THE SCHOOL OF MEDICINE, Fifty Eighth Street and Ellis Avenue—Organized in 1924, as a part of the Ogden Graduate School of Science of the University of Chicago. In 1932, when the University of Chicago reorganized its departments, the medical departments were included in the Biological Sciences Division. The work of the first two years in the medical courses has been given on the University Quadrangles since 1899, but the last two years were offered only at Rush Medical College which was affiliated with the university until 1927 when actual work in the clinical departments on the campus began. After that time, candidates for the degree of Doctor of Medicine could take the work of the first two years on the campus and the work of the third and fourth years either on the campus or at the Rush Medical College. In June 1940 Rush Medical College became affiliated with the University of Illinois College of Medicine. All undergraduate instruction is now given only on the campus of the University of Chicago. The faculty of the School of Medicine is composed of 90 professors, 125 associates, instructors and others, a total of 215. The requirements for admission are 80 semester hours of collegiate work or completion of the Army or Navy premedical program, whether or not the applicant is actually in the Army or Navy. The B.S. degree may be obtained during the second year. The curriculum covers twelve quarters of work. Sixty-five students are admitted to the first year class every nine months. The tuition fee averages \$450. The registration for 1943 was 271, graduates, 72. Quarters begin in March, June, September and December of each year. All correspondence relating to general policies should be addressed to A. C. Bachmeyer, M.D., Associate Dean of the Division of Biological Sciences, and that pertaining to student affairs to L. J. Mullin, Assistant Dean of Students.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, 1835 West Polk Street, Zone 12—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897. Relation ship with the university was canceled in June 1912, and was restored in March 1913, when the present title was assumed. The staff of the Rush Medical College was incorporated in the University of Illinois College of Medicine in 1942 and at the same time Presbyterian Hospital, Chicago, became a teaching unit of the university. Coeducational since 1898. Two years of collegiate work are required for admission. The accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The B.S. in medicine degree is conferred at the end of the second year. The faculty is composed of 250 professors and 250 associates, instructors and assistants, a total of 500. The fees for residents of Illinois average \$288 per academic year, non residents pay an additional fee of \$150. The registration for 1943-1944 was 676, graduates, 161. The present session began April 3, 1944 and will end December 13, 1944. The subsequent session will begin Jan. 2, 1945. The Dean is Raymond B. Allen, M.D.

INDIANA

Bloomington-Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE, Bloomington, 1040 West Michigan Street, Indianapolis—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Coeducational since organization. The faculty consists of 331 professors, lecturers, associates and assistants. The B.S. degree in anatomy and physiology is conferred. The school has been on an all time program since May 11, 1942. Three years of college work are required for admission. Each calendar year is divided into three semesters. The work given in two semesters is equivalent to the work formerly given in a year. The work of the first two semesters is given at Bloomington, the remainder of the work at Indianapolis. Regular fee for two semesters of work is \$217 for residents of Indiana and \$422 for nonresidents. The registration for the session 1943 was 206, graduates, 124. The next regular class will start work on January 1, 1945. The Dean is Willis D. Gatch, M.D., Indianapolis.

IOWA

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, University Campus—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. Coeducational since 1870. The faculty is made up of 56 profes-

sors, 74 lecturers, demonstrators and assistants, a total of 130. Three years of collegiate work are required for admission. The B A degree in the combined course of liberal arts and medicine is conferred. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The tuition fee is \$226 each year for residents of Iowa and \$490 for nonresidents. The registration for 1943 was 317, graduates, 64. The present session began January 3, 1944 and will end September 23, 1944. The subsequent session will begin October 2, 1944. The Dean is Ewen Murchison MacEwen, M D.

KANSAS

Lawrence-Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE, Lawrence, 39th Street and Rainbow Boulevard, Kansas City—Organized in 1880. It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. Absorbed Kansas Medical College in 1913. The first class graduated in 1906. The clinical courses are given at Kansas City. Coeducational since 1880. The faculty includes 64 professors and 125 instructors, assistants and others, a total of 189. The requirement for admission is three years of collegiate work. Students must have collegiate degree to enter sophomore year. The B S degree in medicine is conferred at the end of the second year. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees for residents of the state average \$229.50, nonresidents \$439.50. The registration for 1943-1944 was 330, graduates, 83. The present session for freshmen began March 6, 1944. Upper classmen were enrolled Feb. 21, 1944 and will complete the year Oct. 30, 1944. The subsequent session will begin Oct. 30, 1944. The Dean is Harry R. Wahl, M D., Kansas City.

KENTUCKY

Louisville 2

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE, 101 West Chestnut Street—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated each subsequent year except 1863. In 1846 the name was changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department, in 1908, the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. In 1922 it changed its name to the University of Louisville School of Medicine. Coeducational since organization. Two years of collegiate work are the minimum requirement for admission. Preference is given applicants with a degree or three college years leading to a degree. The faculty numbers 73 professors and 73 assistants, instructors and others, a total of 146. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. Fees are \$450 for residents of Louisville and Jefferson County and \$550 for nonresidents per school year. The registration for 1943 was 363, graduates 88. The present session began January 5, 1944 and will end September 8, 1944. The subsequent session will begin September 27, 1944. The Dean is John Walker Moore, M D.

LOUISIANA

New Orleans 13

LOUISIANA STATE UNIVERSITY SCHOOL OF MEDICINE 1542 Tulane Avenue—Organized January 1931 as Louisiana State University Medical Center. Present title in 1939. Coeducational. First session October 1931, with students of first and third year. Faculty comprises 28 professors and 77 associate professors, assistant professors, instructors and assistants, a total of 105. Course covers four sessions of not less than 32 weeks each. Under the accelerated program adopted for the duration of the war, a first year class will be admitted each year and the entire course will be completed within a period of three years from the date of admission. A minimum of three years collegiate work is required for admission. Total fees, \$134 each year for residents of Louisiana, additional tuition of \$400 each year for nonresidents. The registration for 1943 was 339, graduates, 79. The present session began January 11, 1944 and will end September 6, 1944. The subsequent session will begin September 27, 1944. The Dean is Beryl I. Burns, M D.

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE, 1430 Tulane Avenue—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It became the Medical Department of the Tulane University of Louisiana in 1884. Present title in 1913. Coeducational since 1915. The faculty comprises 34 professors and 240 associate and assistant professors, instructors and assistants, a total of 274. An accelerated program has been adopted involving the admittance of a class at the beginning of each tenth month and the graduating of a class approximately every nine months. A minimum of three years of collegiate work is required for admission. Total fees average \$347 per academic year. The registration for 1943-1944 was 529, graduates, 119. The present session began March 1, 1944 and will end October 14, 1944. The subsequent session will begin December 1, 1944. The Dean is Hiram W. Kostmayer, M D.

MARYLAND

Baltimore

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, 710 North Washington Street—The nucleus of a Medical Faculty was constituted in 1833. Systematic postgraduate instruction in pathology and bacteriology was begun in 1886. School was fully organized and opened in 1893. The first class graduated in 1897. Coeducational since organization. The faculty consists of 72 professors and 399 instructors, assistants and others, a total of 471. The requirement for admission is temporarily two college years. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The fees average \$627 per academic year. The registration for 1943 was 295, graduates, 69. The present session began November 29, 1943 and will end August 18, 1944. The subsequent class will begin September 25, 1944. The Dean is Alan M. Chesney, M D.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS, Lombard and Greene Streets, Zone 1—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged with it in 1913. In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed. Coeducational since 1918. The faculty consists of 52 professors and 332 associate and assistant professors and others, a total of 384, of which 137 are now absent serving with the Armed Forces. Premedical college training reduced from three to two years for the duration of the war. The medical school is now running under an accelerated program for the duration of the war, and requires the admission of a freshman class approximately every nine months. The tuition fees average \$501 for residents of the state, for non residents approximately \$150 additional. The registration for the session 1943 was 371, graduates 90. Present session began January 13, 1944 and will end September 29, 1944. The next subsequent session will begin October 17, 1944. The Dean is Robert U. Patterson, M D.

MASSACHUSETTS

Boston

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street—Organized in 1873 as a homeopathic institution. In 1874 the New England Female Medical College, founded in 1848 was merged into it. The first class was graduated in 1874. Became nonsectarian in 1918. Coeducational since organization. For the duration two years of collegiate work are required for admission. The normal requirement for admission is three years of college work. The faculty includes 23 professors, 212 associate and assistant professors, instructors and others, a total of 235. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Total fees average \$480 per year. The registration for 1943 was 248, graduates 46. The present session began December 31, 1943 and will end September 22, 1944. The subsequent session begins September 29, 1944. The Dean is Charles F. Branch, M D.

HARVARD MEDICAL SCHOOL, 25 Shattuck Street, Zone 15—Organized in 1782. The first class graduated in 1788. It has a faculty of 203 members and 427 other instructors and assistants, a total of 630. Two years of collegiate work are required for admission. The accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$420, plus \$5 the first year for matriculation. The registration for 1943 was 526, graduates, 132. The present session began January 3, 1944 and will end September 25, 1944. The subsequent session begins October 2, 1944. The Dean is C. Sidney Burwell, M D.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Coeducational since 1894. It has a faculty of 107 professors and 322 assistant lecturers and others, a total of 429. Four academic years of college study are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees for each of the four years respectively, are \$512, \$507, \$507 and \$517. The registration for 1943 was 414, graduates, 98. The present session began Jan. 3, 1944 and will end September 1944. The subsequent class will begin Oct. 2, 1944. The Acting Dean is Dwight O'Hara, M D.

MICHIGAN

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since 1870. It has a faculty of 28 professors, 19 associate professors, 31 assistant professors, 89 assistants, instructors and lecturers, a total of 167. The entrance requirements are ninety semester hours. An accelerated program has been adopted involving the admittance of a class annually and the graduation of a class every nine months. The fees average \$250 per academic year, for nonresidents \$400 a year. The registration for 1943-44 was 535, graduates, 118. The last freshman class began Nov. 1, 1943 and ended July 22, 1944. The next freshman class will begin Oct. 30, 1944. The Dean is A. C. Furstenberg, M D.

Detroit

WAYNE UNIVERSITY COLLEGE OF MEDICINE, 1516 St Antoine Street—Organized as the Detroit College of Medicine in 1885 by consolidation of the Detroit Medical College (organized in 1868) and the Michigan College of Medicine (organized in 1879). Reorganized with the title of Detroit College of Medicine and Surgery in 1913. The first class graduated in 1869. In 1918 it became a municipal institution under the control of the Detroit Board of Education. In 1934 the name was changed by action of the Detroit Board of Education to Wayne University College of Medicine, as a part of the program of consolidation of the Detroit city colleges into a university system. Coeducational since 1917. Entrance requirement is 60 semester hours from an accredited college or university for the duration of the war. The faculty consists of 46 professors, 302 lecturers and others, a total of 348. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$325 for Wayne County residents, and for nonresidents, \$425. The registration for 1943 was 265, graduates 58. The present session began January 3, 1944 and will end September 28, 1944. The subsequent session will begin October 2, 1944. The Dean is Edgar H. Norris, M.D.

MINNESOTA

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL, Zone 14—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 219 professors, of whom 82 are on full time appointment and 137 on part time, and 152 instructors. 38 of whom are on full time appointment and 114 on part time, a total of 371. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The entrance requirements are three years of university work, which must include six semester credits of rhetoric, eight semester credits of physics, thirteen credits of general chemistry, qualitative and quantitative analysis, organic and physical chemistry, eight credits of general zoology and genetics and eugenics, four credits of general psychology, and a reading knowledge of scientific German, with a "C" average in all subjects and in the sciences. For the duration of the war entrance requirements have been reduced to two years of college work, and physical chemistry, genetics and eugenics, psychology, and German may be waived by the admission committee. Students are required to meet the requirements for a degree of BS or BA before receiving the degree of Bachelor of Medicine (M.B.), which is granted at the end of the course. The M.D. degree is conferred after a year of intern work, of advanced laboratory work, or of public health work has been completed. Total fees are \$252 per academic year for residents and \$477 for nonresidents. The registration for 1943 was 494, graduates, 108. The academic year 1944 began Jan. 4, 1944 and will end Aug. 26, 1944. The subsequent class will begin October 2, 1944. The Dean is Harold S. Diehl, M.D.

MISSOURI

St. Louis

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Boulevard, Zone 4—Organized in 1901 as the Marion Sims-Beaumont Medical College by union of Marion Sims Medical College, organized in 1890, and Beaumont Hospital Medical College organized in 1886. First class graduated in 1902. It became the Medical School of St. Louis University in 1903. The faculty is composed of 80 professors and 284 instructors and assistants, a total of 364. The completion of three years of college study is the minimum admission requirement but students presenting meritorious credits in excess of the minimum are accepted by preference. During the war period the minimal entrance requirements, however, are two years of college with 60 semester hours of credit. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$536 per academic year. The registration for 1943 was 477, graduates, 107. The present session began November 22, 1943 and will end for freshmen, sophomores and juniors on September 2, 1944 and for seniors on September 21, 1944. The subsequent session begins for freshmen on August 28, 1944, and for sophomores, juniors and seniors on September 5, 1944. The Dean is Alphonse M. Schwittalla, S.J., Ph.D.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Kingshighway and Euclid Avenue, Zone 10—Organized in 1842 as the Medical Department of St. Louis University. The first class graduated in 1843. In 1850 it was chartered as an independent institution under the name of St. Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Coeducational since 1918. The faculty comprises 162 professors and 341 lecturers-instructors and others, a total of 503. For the duration of the war the entrance requirement has been reduced to two years of collegiate work. The B.S. degree in medicine is conferred at the end of the third or fourth year. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$396. The registration for 1943 was 397, graduates, 110. The present session began January 3, 1944 and will end Sept. 12, 1944. The subsequent session begins October 5, 1944. The Dean is Philip A. Shaffer, Ph.D.

NEBRASKA

Omaha

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE, 306 North Fourteenth Street, Zone 2—Organized in 1892 as the John A. Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. It has a faculty of 79 professors and 76 instructors, lecturers and assistants, a total of 135. Sixty-four semester hours of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the second year. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$376 per academic year and \$100 additional each year for students who had not taken the major part of their work at Creighton University. The registration for 1943 was 257, graduates 59. The present session began Jan. 4, 1944 and will end Sept. 22, 1944. The subsequent session will begin Sept. 28, 1944. The Dean is Charles M. Wilhelm, M.D.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE, Forty Second Street and Dewey Avenue, Zone 5—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913, when the work of all four years was transferred to Omaha. Coeducational since 1882. The faculty is composed of 78 professors and 54 lecturers and instructors, a total of 132. Two years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The B.S. degree in medicine is conferred at the end of the second year. The fees average \$250 per academic year. The registration for 1943 was 340, graduates, 73. The present session began Jan. 3, 1944 and will end September 23, 1944. The subsequent session will begin October 2, 1944. The Dean is C. W. M. Poynter, M.D.

NEW YORK

Albany

ALBANY MEDICAL COLLEGE, 47 New Scotland Avenue—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. Coeducational since 1915. The faculty is composed of 93 professors and 109 instructors, assistants and others, a total of 202. The requirement for admission is three years of college work. For the duration students who have completed two years of college and who have the proper specific qualifications will be admitted. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$532 per academic year. The registration for 1943 was 170, graduates, 38. The present session began January 3, 1944 and will end September 23, 1944. The subsequent session will begin October 2, 1944. The Dean is R. S. Cunningham, M.D.

Brooklyn 2

LONG ISLAND COLLEGE OF MEDICINE, 350 Henry Street—Chartered in 1930, was originally organized in 1858 as The Long Island College Hospital. From the collegiate department the first class was graduated in 1860 and the last class in 1930. The first class of the Long Island College of Medicine was graduated in 1931. It is coeducational. It has a faculty of 104 professors, associate, assistant, clinical and assistant clinical professors, and 213 lecturers, associates, instructors, assistants, and others, a total of 317. For the duration of the war two years of collegiate work, including specified courses, are required for admission for men in the armed services, three years for civilians. The medical course covers four academic years but is being given in three calendar years for the duration of the war. The fees average \$610 per academic year. The registration for 1943 was 413, graduates, 91. The present session began Jan. 3, 1944 and will end September 28, 1944. The subsequent session begins Oct. 2, 1944. The President and Dean is Jean A. Curran, M.D.

Buffalo

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE, 24 High Street—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The faculty is composed of 127 professors and 191 associates, assistants and others, a total of 318. The minimum requirement for admission is two years of collegiate work including certain prescribed science subjects. An accelerated program has been adopted admitting a freshman class every nine months. The fees for the entire course are \$2,000. The registration for 1943-1944 was 295, graduates, 61. The present session for freshmen began April 3, 1944 and ends December 23, 1944. The subsequent session for freshmen begins January 2, 1945. The Dean is Edward W. Koch, M.D.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 630 West One Hundred and Sixty Eighth Street—The medical faculty of Columbia College, then known as King's College, was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons, which had received an independent charter in 1807.

In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The medical school has been coeducational since 1917. The faculty is composed of 320 professors and 609 instructors, demonstrators and others, a total of 929. Two years of collegiate work are required for admission. During the war, the school will remain in session throughout the year and entering classes will be enrolled once a year. Fees average \$338 per academic year. The registration for 1943 was 466, graduates, 108. The present session began January 3, 1944 and will end September 28, 1944. The subsequent session begins October 3, 1944. The Dean is Willard C. Rappleye, M.D.

CORNELL UNIVERSITY MEDICAL COLLEGE, 1300 York Avenue—Organized in 1898. Coeducational since organization. First year teaching was given formerly to approximately one third of the class at Ithaca but in 1938 this division was discontinued and all instruction is now in New York City. The faculty is composed of 155 professors and 223 instructors, assistants and others, a total of 378. All students admitted are from approved colleges for premedical training. The requirement for admission is three years of college work. An accelerated program has been adopted whereby a class graduates every nine months. The fees average \$622 per academic year. The registration for 1943 was 319, graduates, 75. The present session began Jan. 3, 1944 and will end September 26, 1944. The subsequent session will begin September 28, 1944. The Dean is Joseph C. Hinsey, Ph.D.

NEW YORK MEDICAL COLLEGE, 1 LOWER AND 1 FIFTH AVENUE HOSPITALS, 1 East 105th Street—Organized in 1838. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869, the title New York Homeopathic Medical College and Hospital in 1887, the title New York Homeopathic Medical College and Flower Hospital in 1908, the title New York Medical College and 1 lower Hospital in 1936, the present title of New York Medical College, Flower and Fifth Avenue Hospitals, June 22, 1938. The first class graduated in 1861. Coeducational since 1919. Two years of college work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. It has a faculty of 105 professors and associate professors, 68 assistant professors, 303 lecturers and assistants, a total of 478. The fees average \$683 per academic year. The registration for 1943 was 373, graduates, 83. The present session began January 3, 1944 and will end September 28, 1944. The subsequent session begins October 2, 1944. The President and Dean is J. A. W. Hetrick, M.D.

NEW YORK UNIVERSITY COLLEGE OF MEDICINE, 477 First Avenue, Zone 16—The Medical Department of New York University (then called the University of the City of New York) was organized in 1841. In 1898 it united with the Bellevue Hospital Medical College organized in 1861, under the name of University and Bellevue Hospital Medical College. In 1935 the name was changed to New York University College of Medicine. Coeducational since 1919. The faculty is composed of 199 professors, associate, assistant, clinical, associate clinical and assistant clinical professors and 367 lecturers, instructors and others, a total of 566. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Entrance requirements are two years of study in an approved college of arts and sciences. The fees average \$600 per academic session. The registration for 1943 was 521, graduates, 121. The present session began January 3, 1944 and will end September 28, 1944. The subsequent session will begin October 4, 1944. The Acting Dean is Donald Sheehan, M.D.

Rochester 7

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE AND DENTISTRY, 260 Crittenden Boulevard—Organized in 1925 as the Medical Department of the University of Rochester. Coeducational since organization. The faculty is composed of 74 professors, 216 lecturers, assistants, instructors and others, a total of 290. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. For the duration of the national emergency, two years of collegiate work are required for admission. The fees average \$500 per academic year. The registration for 1943 was 237, graduates, 63. The present session began January 3, 1944 and will end September 23, 1944. The subsequent session will begin October 2, 1944. The Dean is George H. Whipple, M.D.

Syracuse 10

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 766 Irving Avenue—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. The faculty is composed of 62 professors and 188 associate and assistant professors, lecturers and instructors, a total of 250. Two years of a recognized college course are required for admission. An accelerated program has been adopted involving the completion of the four year course in three years, admitting a freshman class every nine months. The fees average \$600 per academic year. The enrollment for 1943-44 was 194, graduates, 38. The present session for upper classmen began January 3, 1944 and will end September 1944 and for freshmen began April 1, 1944. The subsequent session will begin in January 1945 for first, second and third year students, October 1944 for fourth year students. The Dean is H. G. Wickert, M.D.

NORTH CAROLINA

Durham

DUKE UNIVERSITY SCHOOL OF MEDICINE—Organized in 1925. The first class was admitted October 1, 1930. Coeducational. The faculty is composed of 13 professors and 141 associate and assistant professors, lecturers, instructors and assistants, a total of 154. The premedical requirement is three years of college work. The academic year consists of four quarters of twelve weeks each, which must be taken consecutively, with graduation in three calendar years. The B.S. degree in medicine may be conferred for special work after six quarters. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. Active duty with the Army, Navy or Public Health Service can replace the second year. The fees are \$430 for each year of three quarters. The registration for 1943 was 286, graduates, 60. During 1944-1945 the quarters begin January 3, April 3, July 3, October 2 and end March 25, June 24, September 23 and December 23. The first year students were enrolled January 3, 1944. The next freshman class will be enrolled October 2, 1944. The Dean is Wilbur C. Davison, M.D.

Winston-Salem 7

BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE—Organized in 1902 at Wake Forest as a school offering only the first two years of the curriculum. In 1941 the school was moved to Winston-Salem and expanded to a complete four year medical school under its present name. Ninety semester hours of college work are required for admission. For the duration of the present war students may be admitted who have completed only sixty semester hours. The B.S. degree is given to those who on admission have completed ninety semester hours of academic work after the completion of the first year in the medical school. The next class will be admitted on September 27, 1944. The faculty numbers 119, 18 of whom are on leave of absence in active military service. Tuition for each academic session is \$450. Registration for the session 1943 was 161, graduates, 27. The present session began January 3, 1944 and will end September 25, 1944. The subsequent session will begin September 27, 1944. The Dean is C. C. Carpenter, M.D.

OHIO

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden and Bethesda Avenues—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1832). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged with the University when the title of Ohio Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Coeducational since organization. Candidates for admission to the freshman class will be accepted in accordance with the Army and Navy plan for the training of medical students for the duration of the war. Liberal arts students of the University of Cincinnati may enroll for the seven year combined liberal arts and medical program. The B.S. degree is granted on the joint recommendation of the faculties of the College of Liberal Arts and Medicine at the end of the first medical year. The faculty consists of 112 professors, associate and assistant professors, 350 instructors, etc., a total of 462. During the period of the war emergency the college will operate on an accelerated program. A new class will be admitted every nine months. Tuition is as follows for legal residents of Cincinnati: \$485 a year plus breakage fees (\$50 additional for those not legal residents). Each session will consist of thirty six weeks of work and there will be a short recess between the major sessions. The registration for 1943 was 325, graduates, 74. The present session began Dec. 13, 1943 and will end August 25, 1944. The subsequent class will be admitted Sept. 5, 1944. The Dean is Stanley Dorst, M.D.

Cleveland 6

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 2109 Adelbert Road—Organized in 1843 as the Cleveland Medical College in cooperation with Western Reserve College. The first class graduated in 1844. The school assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Coeducational since 1919. The faculty includes 102 professors and 270 lecturers, assistants and others, a total of 372. The curriculum covers four scholastic years of 38 to 40 weeks each. During the war emergency, these are spaced so that the entire course will be completed in three calendar years. For the duration of the war, the entrance requirements have been reduced to two years of college work. The fees average \$529 per academic year. The registration for 1943 was 317, graduates, 66. The present session began November 22, 1943, and will end on August 26, 1944, for the first three classes, and on September 23, 1944, for the fourth year class. The subsequent session will begin August 28, 1944. Webster G. Simon, Ph.D., is Acting Chairman of the Administrative Committee.

Columbus 10

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, Neil and Eleventh Avenues—Organized in 1907 as the Starling Ohio Medical College by the union of Starling Medical College (organized in 1847 by charter granted by the State Legislature changing the name from Willow, Ohio Medical College, which was chartered March 3, 1834) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. Coeducational since organization. The faculty consists of 99 professors, associate and

assistant professors, 120 lecturers, instructors and assistants, a total of 219, of whom 77 are on military leave. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. Tuition fees average \$318 per academic year and \$150 additional for nonresidents. The registration for 1943 was 299, graduates, 66. The present session began Jan. 4, 1944 and will end Sept. 1, 1944. The subsequent session will begin Oct. 3, 1944. The Acting Dean is R. C. Baker, Ph.D.

OKLAHOMA

Oklahoma City 4

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE, 801 East Thirteenth Street—Organized in 1900. Until 1910 gave only the first two years of the medical course at Norman, Okla., after which a clinical department was established at Oklahoma City by taking over the Medical School of Epworth University. The first class graduated in 1911. Coeducational since organization. A new medical school building and a second teaching hospital became available in 1928, and since September of that year the entire four-year course has been given in Oklahoma City. It has a faculty of 28 professors, 24 associate professors, 26 assistant professors and 120 associates, lecturers, visiting lecturers, instructors and assistants, a total of 198. Two years of college work are a prerequisite for admission during the war. The course covers four years of nine months each. An accelerated program was adopted beginning May 10, 1943 involving admission and graduation of a class every nine months. Fees \$50 maintenance and incidental fee per semester. Other annual course fees average \$128, \$90, \$53 and \$58, in the order given, beginning with the freshman year. For students not residents of Oklahoma there is a tuition charge of \$350 a year, plus laboratory and course fees as indicated for the different years. The registration for 1943 was 252, graduates, 51. The present session began January 5, 1944 and will end September 15, 1944. The next session will begin September 25, 1944 and end June 15, 1945. The Dean is Tom Lowry, M.D.

OREGON

Portland 1

UNIVERSITY OF OREGON MEDICAL SCHOOL, Marquam Hill—Organized in 1887. The first class graduated in 1888, and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Coeducational since organization. It has a faculty of 91 professors and 164 lecturers, assistants and others, a total of 255. Entrance requirements are 82 semester hours of collegiate work. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees are, respectively, \$380, \$375, \$370 and \$376 for residents of Oregon, and \$60 a year additional for nonresidents. The registration for 1943 was 284, graduates, 63. The present session began January 3, 1944 and will end September 21, 1944. The subsequent session will begin October 2, 1944. The Dean is D. W. E. Baird, M.D.

PENNSYLVANIA

Philadelphia

THE HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA, 233 North Fifteenth Street, Zone 2—Organized in 1848 as The Homoeopathic Medical College of Pennsylvania. In 1869 it united with The Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Coeducational beginning with 1941-1942 session. Two years of collegiate work in an approved college of arts and sciences are required for admission. It has a faculty of 113 professors and 114 lecturers, instructors and others, a total of 227. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Fees are, respectively, \$527, \$524, \$524 and \$547. The registration for 1943 was 521, graduates, 115. The present session began January 3, 1944 and will end September 14, 1944. The subsequent session will begin October 2, 1944. The Dean is William G. Schmidt, Ph.D.

JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, 1025 Walnut Street—Organized in 1825 as the Medical Department of Jefferson College, Canonsburg, Pa. It was chartered with its present title in 1838. Classes have been graduated annually beginning 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 92 professors, associate and assistant professors and 232 associates, lecturers, demonstrators and instructors, a total of 334. The bachelor's degree requirement for admission has been suspended for the duration. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees for the current session are, respectively, \$505, \$490, \$480 and \$480. The registration for 1943-1944 was 570 graduates, 133. Registration for the present session is 590. The current session for freshmen, sophomores and juniors extends from January 10, 1944 to September 11, 1944, for seniors from January 10, 1944 to September 22, 1944. The subsequent session will begin October 9, 1944. The Dean is William H. Perkins, M.D.

TEMPLE UNIVERSITY SCHOOL OF MEDICINE, 3400 North Broad Street, Zone 40—Organized in 1901. The first class graduated in 1904. Coeducational since organization. The faculty numbers 29 professors and 214 associates, assistants and others, a total of 243. An accelerated program

has been adopted involving the admittance and graduation of a class approximately every nine months. Two years of collegiate work are required for admission. The fees average \$492 per academic year. The registration for 1943 was 468, graduates, 117. The present session began January 3, 1944 and will end September 14, 1944. The subsequent session begins October 2, 1944. The Dean is William V. Parkinson, M.D.

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE, Thirty Sixth and Pine Streets—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772 and 1773-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. Coeducational since 1914. The faculty consists of 134 professors, 1 society and assistant professors and 450 lecturers, associates, instructors and others, a total of 584. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The tuition fee is \$500 each year, with a deposit fee of \$15, a general fee including student health of \$15 and a matriculation fee of \$5. The registration for 1943 was 517, graduates, 130. The present session began January 3, 1944 and will end September 23, 1944. The subsequent session will begin October 2, 1944. The Dean is William Pepper, M.D.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Henry Avenue and Abbottsford Road, East Falls—Organized in 1880. Classes were graduated in 1882 and in all subsequent years except 1862. It has a faculty of 88 professors and 70 assistants, lecturers and others, a total of 158. At least three years of collegiate work are required for admission and candidates with a degree are given preference. The curriculum covers four years of eight and one-half months each. Total fees are \$500 yearly. The registration for 1943-1944 was 140, graduates, 21. The last session for freshmen and sophomores began September 1, 1943 and ended May 20, 1944, for juniors and seniors July 5, 1943 to March 16, 1944. The present session for fourth year students began April 24, 1944 and will end January 10, 1945, third year students entered July 10, 1944 and will finish March 24, 1945. For first and second year students the next session will begin September 2, 1944 and end June 2, 1945. The Dean is Margaret D. Craighill, M.D., who is on leave of absence for military service. The Acting Dean is Marion Lutz, Ph.D.

Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, Bigelow Boulevard—Organized in 1886, as the Western Pennsylvania Medical College, and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. Coeducational since 1899. The faculty is composed of 30 professors and 370 associates, assistants and others, a total of 400. Entrance requirements are two years of collegiate work. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees are \$500 each year. The registration for 1943 was 376, graduates, 81. The present session began Jan. 3, 1944 and will end about Sept. 29, 1944. The subsequent session will begin Oct. 2, 1944. The Dean is William S. McElroy, M.D.

SOUTH CAROLINA

Charleston 16

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, 16 Lucy Street—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. Coeducational from 1895 to 1912, when privileges for women were withdrawn being restored in 1917. It has a faculty of 49 professors and 40 associates, instructors and others, a total of 89, of which 36 are on a full time basis. The accelerated program for war time operation has been modified to permit only one entering class in 1945 and thereafter continued so as to complete the four academic years in three calendar years. Two years of collegiate work are required for admission during the war, but normally this requirement is three years. The total fees are \$422 each year for residents of South Carolina and \$622 for nonresidents of the state. The registration for 1943 was 188, graduates, 43. The present session began January 3, 1944 and will end September 16, 1944. The subsequent class will begin October 2, 1944. The Dean is Kenneth M. Lynch, M.D.

TENNESSEE

Memphis 3

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, 874 Union Avenue—Organized in 1876 at Nashville as Nashville Medical College. First class graduated in 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the

College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Coeducational since 1911. The faculty includes 140 professors and 162 assistants, instructors and others, a total of 302. Two years of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the second year. The fees are \$120 quarterly. For residents of the state the charge is reduced \$50 each quarter. The registration for 1943-1944 was \$65; graduates, 82. During the academic year of 1944-1945 the quarters begin June 26, September 25, January 1 and March 26, and end September 16, December 16, March 24 and June 16. The Dean is O. W. Hyman, Ph.D.

Nashville

MEHARRY MEDICAL COLLEGE, Eighteenth Avenue North and Meharry Boulevard, Zone 8. (For Negro Youth).—This school was organized in 1876 as the Meharry Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Coeducational since 1876. The faculty is made up of 49 professors and 30 instructors and lecturers, a total of 79. Two years' work in a college of liberal arts are required for admission. Tuition fees are, respectively, \$325, \$315, \$305 and \$315 each year. The curriculum covers four academic years of thirty-six weeks each. Registration for 1943-1944 was \$250; graduates, 62. In September 1942, Meharry Medical College instituted the quarter system. Meharry initiated an accelerated schedule in July 1943. The present session began March 28, 1944 and will end December 17, 1944. The subsequent session begins December 27, 1944. The President is Edward L. Turner, M.D.; the Dean is Michael J. Bent, M.D.

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, Twenty-First Avenue South at Edgehill, Zone 4.—This school was founded in 1874. The first class graduated in 1875. Coeducational since 1925. The faculty numbers 255. For matriculation, civilian students must be graduates of collegiate institutions of recognized standing or seniors in absentia, who will receive the bachelor degree from their college after having completed successfully one year of work in the school of medicine. Army and Navy students will be accepted on completion of the Army or Navy premedical program. The course covers four academic years of nearly nine months each, but due to the accelerated program, the four year course is now completed in three calendar years. The fees average \$465 per academic year. The registration for 1943 was \$206; graduates, 49. The present session began December 27, 1943 and will end September 11, 1944. The following session begins September 25, 1944. The Dean is Waller S. Leathers, M.D.

TEXAS

Dallas

SOUTHWESTERN MEDICAL COLLEGE OF THE SOUTHWESTERN MEDICAL FOUNDATION, 2211 Oak Lawn.—Organized 1943. The first class graduated March 20, 1944. Coeducational since organization. It has a faculty of 126 professors (including associate and assistant professors) and 60 instructors and assistants or a total of 186. The medical college is operated on an accelerated program offering three trimesters of eleven weeks each per academic year so that each beginning student graduates in three calendar years. The tuition fees average \$418 per academic year including hospitalization costs. It is planned to change the instruction fee to \$175 per trimester commencing January 2, 1945; all other fees with the exception of \$5.00 for breakage per academic year will be eliminated. Sixty semester hours are required for admission. Registration for 1943-44 was \$270; graduates, 61. The present session began April 3, 1944 and will end December 18, 1944. The subsequent session will begin January 2, 1945. Plans at the present call for the acceptance of new students approximately every nine months after January 2, 1945. Thereafter it is planned to matriculate the next class October 1, 1946. The Dean of Faculty is Tinsley Harrison, M.D.; the Dean of Students is Donald Slaughter, M.D.

Galveston

UNIVERSITY OF TEXAS SCHOOL OF MEDICINE, 912 Avenue B.—Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 72 professors (including associate and assistant professors) and 76 instructors and assistants, a total of 148. The Medical Branch is operating on an accelerated program offering four academic terms of nine months each for completion of the medical curriculum of thirty-six months. Seventy-two semester hours are required for admission. The fees average \$92.50 per academic year, including health fees for medical care and hospitalization. The registration for 1943 was \$401; graduates, 87. The last freshman class was matriculated November 1, 1943. The freshman class matriculated June 28, 1944. The last class graduated June 24, 1944. The subsequent freshmen will matriculate in September or October 1945. The Dean is Chauncey D. Leake, Ph.D.

Houston

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 509 Lincoln Street, Houston.—Organized in 1900 at Dallas as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. The school was moved to Houston in 1943. Coeducational since organization. The first class

graduated in 1901. Entrance requirements are 72 semester hours of collegiate work. The course covers four years of eight months each. An accelerated program was adopted beginning July 12, 1943, involving the admittance and graduation of a class every nine months. The fees are, respectively, \$418, \$408, \$398, \$423. The registration for 1943-44 was \$29; graduates, 16. The present session began March 27, 1944 and ends November 13, 1944. The subsequent session will begin November 20, 1944. The Dean is Walter H. Moursund, M.D.

UTAH

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE, University Street.—Organized in 1906. Coeducational since organization. Four year curriculum established March 1943 and is now in full operation. The first senior class will graduate September 6, 1944. During the national emergency an accelerated program has been adopted with the admittance of a new class every nine months. Three years of collegiate work are required for admission. The faculty is composed of 11 professors, 23 associate professors, 25 assistant professors, 31 instructors and 12 lecturers; a total of 102. The fees for each quarter are \$135; there is a nonresident fee of \$55 each year. The registration for the 1943 year was \$126. The present session began December 13, 1943 and will end September 2, 1944. The subsequent session will begin September 11, 1944. The Dean is A. Cyril Callister, M.D.

VERMONT

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 60 professors and 44 instructors, and assistants, a total of 104. Three years of college work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. For residents of Vermont the tuition fee is \$400 each session. Nonresidents are charged an additional \$150 each session. A \$25 fee is charged for the doctor's degree. The registration for 1943 was \$142; graduates, 33. The present session began January 3, 1944 and will end September 13, 1944. The subsequent session will begin September 25, 1944. The Dean is Clarence H. Beecher, M.D.

VIRGINIA

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session of 1920-1921. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. It has a faculty of 49 professors and 46 lecturers, instructors, assistants and others, a total of 95. Two years of college work are required for admission. For residents of Virginia the total fees average \$388 per academic year. Nonresidents are charged an additional \$50 each year. The registration for 1943 was \$264; graduates, 54. The present session began December 27, 1943 and will end September 14, 1944. The subsequent session will begin September 29, 1944. The Dean is Harvey E. Jordan, Ph.D.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Twelfth and Marshall Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 97 professors and 170 lecturers, instructors and others, a total of 267. Of this group 11 professors and 79 lecturers, instructors and others are on military leave. Two years of collegiate work are required for admission. An accelerated program has been adopted involving the admission and graduation of a class approximately every nine months. Fees average \$384 per academic year. Nonresidents are charged an additional \$125 each year. The registration for 1943 was \$111; graduates, 74. The present session began December 30, 1943, for first year students; January 3, 1944 for all other students and will end September 23, 1944. The subsequent session will begin October 4, 1944, for first year students; October 9, 1944, for all other students. The Dean is J. P. Gray, M.D.

WISCONSIN

Madison 6

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL, 418 North Randall Avenue.—Organized in 1907. Gave only the first two years of the medical course until 1925, when the clinical years were added. Coeducational since organization. The requirement of three years of collegiate

work for admission has been reduced to two years for the duration. Beginning July 1, 1943, a class was admitted every nine months. An accelerated program has been adopted permitting the completion of four years of academic work in three calendar years. It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131. The fees average \$206 per academic year. An additional fee of \$200 each year is charged nonresidents. The registration for 1943-1944 was 265, graduates, 57. The present session for freshmen began April 1, 1944 and the following session will begin January 1, 1945. The Acting Dean is Walter J. Meek, Ph.D.

Milwaukee

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE, 561 North Fifteenth Street—Organized in December 1912 by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 192. Three years of collegiate work are normally required for admission. During the duration students are admitted in accordance with the prescribed Army and Navy programs. The accelerated program includes three semesters each calendar year, an equivalent of four years of eight and a half months each in three calendar years. The fees average \$450 per academic year. The registration for 1943 was 347 graduates, 70. The last session began November 1, 1943. The present session began July 31, 1944. The Dean is Eben J. Carey, M.D.

CANADA

Alberta

UNIVERSITY OF ALBERTA FACULTY OF MEDICINE, Edmonton—Organized in 1913. Coeducational since organization. Has given the complete six-year medical course since 1924. New course—three years premedical, four years medicine, one year undergraduate internship for medical degree—has been offered beginning with the session 1942-1943. The faculty includes fifteen full time and sixty-nine part time professors, instructors and assistants and others, a total of eighty-four, of whom twenty are absent on war service. Tuition for the first and second years is \$255, for the third and fourth years \$265 and for the fifth and old sixth year \$263. The registration for 1943 was 151, graduates 35. The present session (accelerated) including only the 3rd, 4th and old 6th years began on June 1st 1944 and will end on December 31st, 1944. The following session (regular) will open on September 28th, 1944, for the 1st and 2nd years (not accelerated) and in February 1945 (accelerated) for the 4th and 5th years. The Dean is Allan C. Rankin, M.D.

Manitoba

UNIVERSITY OF MANITOBA FACULTY OF MEDICINE, Bannatyne Avenue, Winnipeg—Organized in 1883 as Manitoba Medical College, first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 36 professors and 103 instructors and assistants, a total of 139. Matriculation requirements include two years of collegiate work in the faculty of arts and science of a recognized university. An accelerated program was adopted but was discontinued with class entering in fall of 1943. The course extends over four years of eight months each and a hospital internship. The fees average \$254 yearly. The registration for 1943-1944 was 229, graduates 61. The last class for freshmen began August 21, 1943. The subsequent session begins for first and second years, September 1, 1944, third year began January 3, fourth year, January 17, and will end April 1945. September 30, 1944, and October 21, 1944. The Dean is A. T. Mathers, M.D.

Nova Scotia

DALHOUSIE UNIVERSITY FACULTY OF MEDICINE, Morris Street, Halifax—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the university. First class graduated in 1872. Coeducational since 1871. It has a faculty of 45 professors and 34 demonstrators, lecturers and others, a total of 79, 14 of whom are in active service and are on leave for the duration. Requires for matriculation two years of arts. The regular medical course covers four years and a hospital internship of one year. Beginning in 1942 the last three years of the medical course were given under the accelerated plan. This was accomplished eliminating holidays, the content of the course being practically the same. The final year internship was reduced to eight months. On January 6, 1944, Faculty decided to discontinue acceleration. The last two years, that is one graduating in May, 1944 and the present fourth year were conducted on the accelerated plan. All other years will be conducted under the old schedule. The fees average \$317 yearly, \$250 additional registration fee payable by students outside the British Empire. The last freshman class began September 14, 1943 and ended May 16, 1944. The subsequent freshman class will begin September 1944. The registration for 1943-1944 was 169, graduates, 36. The Dean is H. G. Grant, M.D.

Ontario

QUEEN'S UNIVERSITY FACULTY OF MEDICINE, Kingston—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 62. Fees for the first year amount to \$231, and for the following years \$253. The course covers six years of thirty teaching weeks. An accelerated program has been adopted, and is in effect for all years except the first which has returned to the normal course. Freshmen will be admitted annually. Registration for 1943-1944 was 272, graduates, 47. The last session for freshmen began September 27, 1943 and ended April 30, 1944. The next session begins for first, second and fifth year students on September 25, 1944, for fourth year students on January 8, 1945, for sixth year students on April 30, 1945, and for third year students in September, 1945. The last Convocation was held on May 4, 1944, and another class will graduate in February, 1945. The Dean is G. Spencer Melvin, M.D.

UNIVERSITY OF TORONTO FACULTY OF MEDICINE, Toronto—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University Medical Department, and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The B.Sc. (Med.) degree is conferred at the end of the third or sixth year. It has a faculty of 77 professors and 336 (including 86 on leave of absence for the duration of the war) lecturers, associates and others, a total of 413. The fees are \$240 for the first year, for the second \$315, \$315 for the third year, \$340 for the fourth and fifth years and \$368 the sixth year. The registration for 1943-1944 was 772, graduates, 107. The last freshman class began September 28, 1943 and ended May 6, 1944. The next first year course begins September 26, 1944 and ends May 5, 1945. Students in the final year graduated May 5, 1944 and will graduate every eight months thereafter. The Dean is W. E. Gallic, M.D.

UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL, Ottawa Avenue, London—Organized in 1881 as the Western University Faculty of Medicine, first class graduated in 1883, and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 101. The normal course of study covers five years of ten months each. The total fees to residents of Canada for the last four years respectively are \$356, \$356, \$352 and \$360, nonresidents are charged \$646, \$646, \$642 and \$650 for each of the last four years. The registration for 1943-1944 was 201, graduates 31. The last session for freshmen began September 20, 1943 and ended May 1944. The next session begins for all years September 5, 1944, and ends June 16, 1945. The Dean is F. J. H. Campbell, M.D.

Quebec

MCGILL UNIVERSITY FACULTY OF MEDICINE, 3640 University Street, Montreal—Founded in 1823 as Montreal Medical Institution, became the Medical Faculty of McGill University in 1829, first class graduated under the university auspices in 1833. No session between 1836-1839, owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop's College. Coeducational since 1919. Three years of collegiate work are required for admission. An accelerated program has been adopted for the upper classes. The faculty consists of 82 professors and 204 lecturers and others, a total of 286. The total fees for each of the four medical years are \$391 plus \$100 for non-British subjects. The registration for 1943-1944 was 409, graduates, 97. The present session began for sophomores June 7, juniors February 17 and seniors May 6, 1943. Freshmen will enroll September 5, 1944. The next class will graduate July 31, 1945. The Dean is J. R. Fraser, M.D.

UNIVERSITY OF MONTREAL FACULTY OF MEDICINE, 2900 Mount Royal Boulevard, Montreal—Organized in 1843 as the Montreal School of Medicine and Surgery. In 1891, by Act of Parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name by Act of Parliament in 1920. A class was graduated in 1843 and each subsequent year. Coeducational since 1925. The faculty numbers 150. The requirements for admission are: First, a B.A. degree (or its equivalent), Second, one year premedical in the faculty of pure sciences (or an entrance examination on the premedical subjects). An accelerated program has been adopted. An internship is required for graduation. The fees average \$235 yearly. The registration for 1943-44 was 298, graduates, 52. The present session for juniors and seniors began February 1, 1944, and will end September 30, 1944. Freshmen and sophomores will enroll September 18, 1944, and will complete the year May 31, 1945, there is no accelerated course for them, nor for those of the subsequent years. The Dean is Albert LeSage, M.D.

LAVAL UNIVERSITY FACULTY OF MEDICINE, Quebec—The Quebec School of Medicine, organized in 1848, became in 1852 the Laval University Faculty of Medicine, first class graduated in 1855, and a class graduated each subsequent year. An accelerated program was adopted in 1942 on account of the war. The faculty numbers 93. The fees for each of the medical years are \$200 for residents of Canada. Nonresidents are charged an extra fee of \$200 each year. The premedical requirement is a B.A. degree or its equivalent. The registration for 1943-1944 was 416, graduates, 57. The last session began September 15, 1943 and ended May 20, 1944. The next class will graduate in June 1945. The subsequent session will begin September 12, 1944. The Dean is Charles Vézina, M.D.

APPROVED SCHOOLS OF THE BASIC MEDICAL SCIENCES

ALABAMA

University (Tuscaloosa)

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868, inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907, when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus near Tuscaloosa. A four year medical school is being developed at Birmingham to be known as 'The Medical College of Alabama.' Dr. Roy R. Kracke has been appointed as Dean in charge of developments at Birmingham. The present school of basic medical sciences will be maintained at the University until the medical building at Birmingham has been completed. Coeducational since 1920. Minimum entrance requirements are 96 semester hours. An accelerated program has been adopted and a new freshman class will be admitted approximately every nine months. The faculty includes 14 professors and 14 instructors, assistants, and others, a total of 28, of whom 7 are absent in the Armed Forces. The tuition fees are \$304 each academic year plus \$75 differential for nonresidents. The registration for 1943 was 108. The present session began Dec. 6, 1943, and will end Aug. 15, 1944. The subsequent session will begin Sept. 4, 1944. The Dean is Stuart Graves, M.D.

MISSISSIPPI

University

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE—Organized in 1903. Coeducational since organization. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. An accelerated program has been adopted and a new freshman class is admitted each nine months. Entrance requirement is three years of collegiate work or ninety semester hours of credit. The B.S. degree in medicine is conferred at the end of the second year. The faculty includes 9 professors, 2 assistant professors, 1 adjunct professor, 17 instructors, assistants and others, a total of 29. The total fees for the first year are \$375, and for the second year \$348. The registration for 1943 was 55. The last class began September 27, 1943 and ended May 29, 1944. The present session began May 31, 1944 and will end January 23, 1945. The subsequent session begins January 29, 1945. The Dean is J. B. Hooper, M.D.

MISSOURI

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE—Organized at St. Louis in 1845, was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. Coeducational since 1872. An accelerated program has been adopted involving the admittance of a class every nine months. The faculty includes 23 professors and 19 instructors, lecturers and others, a total of 42. The entrance requirements are sixty semester hours of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. Total fees for the first year are \$266, for the second, \$224. The registration for 1943 was 80. The current session began December 27, 1943 and will end September 1, 1944. The subsequent session will begin September 16, 1944. The Dean is Dudley S. Conley, M.D.

NEW HAMPSHIRE

Hanover

DARTMOUTH MEDICAL SCHOOL—Organized by Dr. Nathan Smith in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Courses of the third and fourth year were discontinued in 1914. The faculty consists of 22 professors and 14 instructors, a total of 36. Army and Navy premedical curricula accepted for admission. An accelerated program has been adopted admitting a freshman class approximately every nine months or eight months of actual teaching. Candidates for the A.B. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The tuition is \$450 for each year. The registration for 1943 was 48. The last session began October 31, 1943 and ended June 24, 1944. The present session began July 1, 1944. The Dean is John P. Bowler, M.D.

NORTH CAROLINA

Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a

department in Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Coeducational since 1914. Three years of college work are required for admission. Certificates are awarded on the completion of two years' work in medicine. The faculty is composed of 20 professors, 14 instructors and 7 lecturers, a total of 41. The fees for each year are \$322.20 for residents, for nonresidents an additional fee of \$100. The school has gone on the accelerated schedule for the duration of the war. The registration for 1943 was 91. The present session began December 8, 1943 and will end September 9, 1944. The subsequent session will begin September 18, 1944. The Dean is W. Reece Berryhill, M.D.

NORTH DAKOTA

Grand Forks

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Three years work in a college of liberal arts are required for admission. (For the duration of the war about two years as per Army and Navy plans.) The B.S. degree in combined arts medical course is conferred at the end of the second year. The faculty consists of 7 professors and 7 instructors, a total of 14. The fees are \$170 each year for resident students and \$340 for nonresidents. The registration for 1943-44 was 57. The present session began March 27, 1944 and ends Dec. 16, 1944. The subsequent session will begin January 2, 1945. The Dean is H. E. French, M.D.

SOUTH DAKOTA

Vermillion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICAL SCIENCES—Organized in 1907 as the University of South Dakota School of Medicine. Present title in 1937. Coeducational since organization. Offers only the first two years of the medical course. Two years work in a college of liberal arts are required for admission. Students who complete the third year of premedical work in the College of Arts and Sciences at the University of South Dakota may apply the work of the first year of medicine to the A.B. degree. The B.S. degree is conferred at the end of the second year on those students who do not hold a combination (Arts and Sciences and Medicine Course) A.B. degree. The faculty numbers 18. An accelerated program has been adopted involving the admittance of a class approximately every nine months. The tuition is \$150 each year for residents and \$255 for nonresidents. The registration for 1943 was 44. The present session began Dec. 13, 1943 and will end September 2, 1944. The subsequent session will begin September 11, 1944. The Dean is Joseph C. Ohlmacher, M.D.

WEST VIRGINIA

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE—Organized in 1902, gives the first two years of the medical course, but agreement has been made for the transfer of 20 students each year to the Medical College of Virginia. Coeducational since organization. Entrance requirements are three years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. An accelerated program has been adopted involving the admittance of a class every nine months. Faculty numbers 24. Fees for residents of the state are respectively, \$255 and \$265, nonresidents, \$150 additional each year. The registration for 1943 was 55. The present session began December 27, 1943 and will end September 16, 1944. The subsequent session begins September 25, 1944. The Dean is Edward J. Van Lier, M.D.

CANADA

Saskatchewan

UNIVERSITY OF SASKATCHEWAN SCHOOL OF MEDICAL SCIENCES, Saskatoon—Organized in 1926. Coeducational. Offers the first two years of the medical course. An accelerated program has been adopted. Two years of collegiate work are required for admission. The B.A. degree is conferred at the end of the second year. The medical faculty includes 7 professors and 4 lecturers and assistants, a total of 11. The fees are \$150 for each year. The registration for 1943-44 was 46. The last session for freshmen began October 4, 1943 and ended May 12, 1944. The next session begins September 28, 1944 for the first year and ends May 11, 1945. The second year began May 30, 1944 and ends December 22, 1944. The Dean is W. S. Lindsay, M.B.

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SATURDAY, AUGUST 19, 1944

CHALLENGES TO MEDICAL EDUCATION

The medical schools and their faculties have met the challenge of wartime conditions admirably, teaching more students in less time than formerly in the face of greatly depleted numbers of instructors. The devotion of faculty members who carried on the increased work under adverse conditions is highly commendable. In the period of demobilization to come, special consideration should be given to the preferential early release of physicians on medical school faculties so as to restore the quality of medical instruction to a higher level as soon as possible.

The studies carried out by the Committee on Postwar Medical Service and reported by Lieut. Col. Harold Lueth in this issue (page 1099) indicate the magnitude of the problem of providing further education for discharged medical officers. There were requests for additional postwar training from 796 of 1,000 officers replying to a questionnaire. Nearly 34 per cent requested courses of less than six months' duration. Nearly 46 per cent desired further work in hospitals for six months to three or more years. Provision of the requisite additional educational opportunities will require the concerted efforts of internship and residency hospitals, medical schools, medical societies, specialty boards and others. We owe this service to those medical officers whose education was interrupted by the war.

Numerous problems in undergraduate medical education also must be met. Wartime experiences in medical care for the armed forces and for civilians have accentuated the growing importance of certain expanding fields of medicine. Notable among these are neuropsychiatry, public health, industrial health, physical medicine and tropical medicine. The place of these in undergraduate and graduate medical education is considered by authorities in these fields in this issue (pages 1103 to 1109).

More material cannot be added to the undergraduate curriculum unless other subject matter is withdrawn. At many points a reduction of the content of "courses" not only would be possible but would improve the educational program. Vested interests of certain departments or faculty members, established by outworn tradition or the aggressive capturing of curricular time, must not be permitted to stand in the way of an improved curriculum which will more adequately prepare the student for the problems of today in medicine.

THE CIVILIAN DOCTOR'S RESPONSIBILITY

The physicians of the United States have an enviable record in the war. Those in the armed forces both by their quality and by their numbers have cooperated in the finest program of medical care ever developed for any army or navy. More than 55,000 physicians left their civilian positions, and those who remained at home took over most of the medical care that had been previously given by those entering the service. Theirs too has been a tremendous, back breaking undertaking. Each physician is caring for fifteen hundred instead of a thousand people on the average. Those who have gone from each community have been the healthiest portion of the populace, the physically qualified young men and women. For the civilian physicians remained those who were not physically qualified and therefore required more attention per capita than the group cared for by physicians prior to the war.

This load has resulted in an increase in morbidity and mortality in the medical profession. While some advantages, particularly increased income, accrued to these physicians, they have shortened their lives and impaired their health in meeting this extra task.

At present only a sufficient number of physicians remain in civil life to meet the needs of the civilian population, provided they are properly distributed. In an attempt to aid such proper distribution, the Procurement and Assignment Service of the War Manpower Commission limited recruiting in certain states and facilitated over three thousand three hundred relocations. However, perhaps as a result of what seems to be the impending end of conflict, a tendency has developed on the part of some physicians to move into other areas of practice or to enter postgraduate or other special training rather than to remain in their present essential job of meeting the needs of the community that depends on them for medical care.

The medical profession itself requested that a federal agency be set up by which the members could voluntarily supply the armed forces with necessary medical care and as a part of that federal program to continue minimal adequate care for the civilian population. If

now any appreciable number of physicians leave positions in which they are considered essential, the medical profession will fail in the second and equally important goal which was set for its attainment. Each physician who is in an essential position should remain in that capacity until present shortages of physicians can be relieved. The excellent record of the medical profession both in peace and in war should not be marred by any sudden exodus at this time to meet the call of greener interesting fields or more lucrative pastures.

DISEASE AND RACE

Studies of the relations between race and disease have not thus far yielded any results useful in the prevention or therapy of diseases. Such investigations have been limited largely to the compilation of statistical data covering the comparative incidence of certain disorders or dispositions to various diseases of endogenous or exogenous origin among the various races. Relatively little effort has been made to correlate such numerical facts with peculiarities and differences in the functional and anatomic constitution of different racial groups. This information would, of course, be distinctly valuable in determination of the endogenous factors that control the susceptibility or resistance of the individual to pathogenic agents and mechanisms.

European investigators have turned their main attention to the differences existing apparently in this respect between the Nordic, Slavic, Mediterranean and Jewish racial mixtures inhabiting Europe and North Africa. They noted, for instance, the higher frequency of cutaneous cancer among the fair skinned members of the Nordic race, the predominance of thalassanemia among the inhabitants of the central and eastern parts of the Mediterranean basin and the greater incidence of lipoidoses, diabetes mellitus, vascular degenerative diseases, pentosuria and fibroids and cancers of the corpus uteri among the Jewish parts of the white race.¹ American observers confirmed these observations in studies on the white population of the United States and extended their investigations on American Negroes, Indians and Filipinos. The almost exclusive occurrence of sickle cell anemia among Negroes and a high incidence of malignant nephrosclerosis, atherosclerosis, hypertension, keloids, uterine fibroids and ovarian tumors among the members of this racial group has been recorded. On the other hand, the Negroes exhibited a low incidence of cutaneous cancer, dermatitis and coronary thrombosis in comparison to the white population.² American Indians and Eskimos have normally a lower blood pressure than the white race and they resemble in this respect other Mongoloid groups, such as Chinese, Japanese and Koreans. Fili-

pinos, however, behave in regard to blood pressure much like European and American white persons living in the tropics.

The present worldwide struggle has scattered American physicians all over the globe and brought them into intimate contact with members of practically all races. American scientists have therefore a unique opportunity for studying the relations that exist between race and disease. They may thereby contribute valuable data to the defective and often contradictory information existing on this matter. Military necessities which prescribe the enforcement of sanitary regulations and medical supervision of the native population of many foreign lands provide at the present time opportunities and conditions for such investigations which are not attainable when peacetime conditions again prevail. Special attention should be paid in such studies to the long range effects which hybridization exerts on the health and anatomic and mental constitution of the resulting racial mixtures. As racial interbreeding has been in recent years mainly the subject of social, economic and political considerations, it becomes an urgent necessity that reliable biologic facts on this important subject be obtained, which may influence the future of our national life.

Current Comment

NEW MEDICAL SCHOOLS

Within the past year three schools have been added to the list of approved medical schools maintained by the Council on Medical Education and Hospitals. The Southwestern Medical College of the Southwestern Medical Foundation is located at Dallas, Texas. Dr. Tinsley Harrison is dean of the faculties. The Bowman Gray School of Medicine has expanded from a school of the basic medical sciences to a four year medical school, located at Winston-Salem, N. C. Dr. C. C. Carpenter continues as dean. Under the deanship of Dr. A. Cyril Callister, the University of Utah School of Medicine, at Salt Lake City, has also developed a four year program. The University of Alabama has virtually completed arrangements for expansion to the four year status, employing the facilities of the Hillman and Jefferson hospitals in Birmingham. It is anticipated that junior instruction will commence about July 1945 under the direction of Dean Roy R. Kracke. Dr. Stuart Graves will continue as dean of the basic sciences. The Council on Medical Education and Hospitals is glad to encourage and assist well planned institutions in developing medical schools where the need exists; it must, however, discourage ill conceived ventures in medical education. New and more medical schools will not solve the problem of distribution of medical care. There is no assurance that more doctors will practice in rural communities if more doctors are produced. The rate of production of doctors and their adequate distribution are independent problems.

1. Schottky, J.: *Rasse und Krankheit*, Munich, J. F. Lehmanns Verlag, 1937.

2. Lewis, J. H.: *The Biology of the Negro*, Chicago, University of Chicago Press, 1942.

NECROPSIES IN INTERNSHIP HOSPITALS

Under wartime conditions, with staff shortages, efforts at maintaining an adequate necropsy percentage tend to lag in some hospitals. The Council on Medical Education and Hospitals is aware of these difficulties, yet its responsibility for maintaining educational standards remains. The Council cannot continue for approval hospitals which fail to maintain the required 15 per cent of necropsies or which are unable to correct deficiencies in necropsy performance within a reasonable time. The necropsy ratio of a hospital is recognized as one of the more reliable indexes of the quality of educational service in hospitals. This service is especially important now, since the curtailed internships must be made maximally valuable to house officers. To insure that post-mortem examinations are requested on all deaths, house officers should be required in each instance to file a report in the superintendent's office containing either a signed permit or a notation as to why the necropsy could not be obtained. This procedure has been extremely helpful in many hospitals, for it creates further interest among the medical staff and serves to stimulate the interns and residents to greater effort.

TEXAS CHIROPRACTIC ACT UNCONSTITUTIONAL

Since 1876 there has remained in the constitution of Texas a clause granting the legislature the right to pass laws prescribing the qualifications of practitioners of medicine coupled with a proscription that "no preference shall ever be given by law to any schools of medicine." The meaning of this proscription has been an issue in two important Texas cases. In one case, which arose a number of years ago, Texas osteopaths sought to compel the governing board of a municipal hospital to permit the use of its facilities by such practitioners. They relied in part on the constitutional proscription to support their case, which eventually reached the Supreme Court of the United States. The court held that the proscription had nothing whatever to do with the right of osteopaths to practice in municipal hospitals, and the right demanded was denied.¹ More recently, in 1943, Texas chiropractors were successful in securing the passage of legislation creating an independent board of chiropractors to examine and license applicants and prescribing qualifications to be possessed by persons desiring to practice chiropractic. Theretofore adherents of the cult were required to meet the standards applicable to all other practitioners. In other words, until 1943 Texas had a single standard of medical licensure. Chiropractor Halsted failed to obtain a license under the new act, and prosecution was instituted. He sought his release by writ of habeas corpus, asserting that the act was unconstitutional because of the provision in the Texas constitution. He was successful in convincing the court of the soundness of his contention. In an opinion delivered June 7, 1944 by the Commission of Appeals and subsequently approved by the Court of Criminal

Appeals,² it was pointed out that in enacting the chiropractic act the legislature had given preference to chiropractors over all others engaged in treating the human body for diseases and disorders because of the fact that the cultists were not required to have the same educational qualifications nor were they required, as a condition precedent to their right to treat patients, to pass a satisfactory examination on the same subjects that are required of all other practitioners. That the act violated the nonpreference clause of the constitution was held to be clear and, quoting from the opinion, "when the Constitution speaks, it is supreme. An enduring and lasting government requires that it so remain."

REORGANIZATION OF MEDICAL TRAINING IN GREAT BRITAIN

Word has been received from the British Information Services that the Interdepartmental Committee on Medical Schools has made the following recommendations: That every medical school should be an integral part of some university, and grants from public funds for its educational work should be received through the university; that there should be more full time appointments and salaries for clinical teachers, with an academic head for each clinical division; that postgraduate study should be encouraged as a feature of regular practice by refresher courses for general practitioners, along with regular association with hospitals and the work of specialists; that medical schools should have a triple function with regard to research: (1) to discover and train research workers, (2) to facilitate their work by good teaching staffs and (3) to house special research units. It is recommended that central health service councils be established with university representation on them, that nonteaching hospitals have access to teaching centers and that special centers maintain refresher courses for general practitioners.

SCHOOLS FOR X-RAY TECHNICIANS

Essentials of an Acceptable School for X-Ray Technicians were adopted by the House of Delegates of the American Medical Association at the recent annual session. These essentials were prepared by the Council on Medical Education and Hospitals with the advice of various organizations interested in the training of x-ray technicians. A survey of schools for x-ray technicians disclosed that six were fulfilling the essentials, sixty-three had minor deficiencies and sixty-two will require further reorganization to meet the present requirements. Each of the schools having deficiencies will be urged to comply with the essentials before the first list of approved schools for x-ray technicians is printed in THE JOURNAL. The Council will continue its work with the various schools engaged in the training of x-ray technicians and will give full assistance in the development of satisfactory training programs.

2. Ex parte W. B. Halsted (No. 22,775) decided June 7, 1944, Court of Criminal Appeals.

1. Hayman v. City of Galveston, 47 Sup Ct 363

MEDICINE AND THE WAR

ARMY

BLIND YANKS TREATED AT ST. DUNSTAN'S

The first American casualty from Normandy was recently admitted at St. Dunstan's, famous British hospital and training center for the war blinded. Under the system of mutual aid, by which not only equipment but the brains and experience of Britain and America are pooled, it was agreed by the American and British governments that this unique eye hospital would receive American casualties from the European theater and treat and train them exactly as are British soldiers and airmen. The United States could similarly take care of British eye casualties from the Pacific area. Seven Americans have been admitted to St. Dunstan's to date. Some have now returned to America to continue treatment and training. Others have so taken to St. Dunstan's training and personnel that they have asked to stay in England until thoroughly rehabilitated and have been allowed to do so.

The most recent achievements in coordination between British and American services for the blind include the production of "talking books." These full length recorded novels, biographies and many other types are so made that the blind can confidently handle and play them. Like ordinary phonograph records except for the fact that they are very slow running, they must be played on a specially constructed machine. Thus technical coordination is essential in order for Britain and the United States to exchange recordings.

Britain has just begun making talking books for the Library of Congress and other distribution in America, and several copies of "Whereas I Was Blind," by Sir Ian Fraser, the personal story of the founder of St. Dunstan's, are now en route. St. Dunstan's finds that the blind especially like novels which have made popular plays and films, and American recordings of Daphne Du Maurier's "Rebecca" and Margaret Mitchell's "Gone With the Wind," on eight records, have recently arrived here. Richard Llewellyn's "How Green Was My Valley" is a popular British recording.

POSTWAR TRAINING OF MEDICAL CORPS OFFICERS

The Office of the Surgeon General of the Army has announced the appointment of a committee to formulate plans for postwar training of medical corps officers who will be separated from the military service at the end of the war. The committee consists of Brig. Gen. Raymond W. Bliss, chief of operations service, chairman; Brig. Gen. James S. Simmons, chief of preventive medicine service; Col. James R. Hudnall, chief of personnel service; Brig. Gen. Fred W. Rankin, director of surgery division; Brig. Gen. Hugh J. Morgan, director of medicine division; Col. Floyd L. Wergeland, director of training division; Col. William P. Holbrook and Lieut. Col. R. H. Meiling, representatives from the Army Air Forces; Col. R. B. Skinner, representative from the Army Ground Forces; George B. Darling, M.D., representative from the National Research Council.

ARMY NURSE CORPS ACQUIRES FULL MILITARY STATUS

Approximately 40,000 Army nurses have become officers of the Army of the United States, acquiring full military status for the first time since the Army Nurse Corps was founded in 1901 by an act of Congress. By the terms of an executive order signed by President Roosevelt, the entire personnel of the Army Nurse Corps has been moved bodily into the Army, with the same pay and prerogatives as other officers. Prior to passage of the bill signed by the President, June 22, and made fully effective July 12, Army nurses held what was known in

the Army as "relative rank," giving them subordinate status and limited military authority. Army nurses now have the same status as members of the WAC, who were also an army auxiliary when first organized. Commissions in their present grades will be issued to all members of the Army Nurse Corps under the provisions of the new executive order unless they expressly decline appointment. Female dietitians and physical therapy aides will have the same military status as nurses and will be commissioned similarly.

MAJOR MARGARET M. JANEWAY ASSIGNED TO NEW DUTIES

Major Margaret M. Janeway, who spent fourteen months in Italy and North Africa as physician for 1,800 members of the Women's Army Corps in that area, was recently assigned to duty as assistant to Major Margaret D. Craighill, director of the Women's Medical Unit, Office of the Army's Surgeon General, Washington, D. C. This unit develops policies concerning the medical care and welfare of women in the Army, including the thousands of nurses, dietitians and physical therapy aides, as well as the members of the Women's Army Corps. Dr. Janeway became a contract surgeon in 1942 and was assigned to the WAC. She was commissioned a first lieutenant in December 1942 and landed in Africa Jan. 26, 1943 with the first Women's Army Corps contingent to be sent abroad. At that time her charges numbered 190 women, carefully chosen from various sections of the United States. When she returned to the United States her responsibilities had been broadened to include all the members of the Women's Army Corps in North Africa and Italy. Dr. Janeway graduated from Columbia University College of Physicians and Surgeons in 1927.

UTILIZATION OF RECOVERED PSYCHONEUROTIC PATIENTS

Recovered psychoneurotic patients are given retraining by the Army so that they may be utilized for further service. Classification boards carefully review each man's record and indicate the degree and kind of service he is capable of performing. The Classification Board will be constituted only for the purpose of removing classification of restriction as regards mental state for the purpose of declaring an enlisted man to be qualified for full general duty. Assignments are governed largely by the geographic location in which the men desire to be stationed, and it is the responsibility of each installation to utilize the men in best possible manner considering their limitations as shown on W. D., A. G. O. form 20 and Disposition Board report included in records.

FOURTEEN SOLDIERS WHO VOLUNTARILY CONTRACTED SANDFLY FEVER FOR RESEARCH AWARDED MEDALS

The Legion of Merit was recently awarded to fourteen soldiers who volunteered to submit to experiments which greatly increased the knowledge of sandfly fever, a disease encountered by American fighting men in tropical and semitropical regions. The soldiers were all infected with the disease during the experiments. The fever was produced in some of the volunteers by small injections of blood from individuals who had it and in others by deliberate exposure to repeated bites of infected sandflies. The carrier is a fly about an eighth of an inch long, and it is only the female of the species which bites. The experiments disclosed that the virus causing the fever in the Middle East was the same as that contracted by our soldiers in Sicily.

ARMY AWARDS AND COMMENDATIONS

Captain William Allison Stem

Capt William Allison Stem, formerly of Fayetteville, N. C., and now a flight surgeon for the twelfth air force in the European theater, has been commended by his commanding officer. The commendation, in part, reads "Capt William Stem is commended for his exceptionally meritorious service as squadron flight surgeon during the Tunisian, Pantellerian, Sicilian and Italian campaigns from Nov. 12, 1942 to Jan 31, 1944. His ability to handle delicate situations has caused him to become the primary morale building factor in his organization." Dr Stem graduated from the University of Tennessee College of Medicine, Memphis, in 1936.

Captain Joseph J. Nannariello

Capt Joseph J Nannariello, formerly of Hoboken, N J, was awarded the Silver Star Medal for administering first aid to nine Yanks wounded by enemy gunfire. Fighting in ravines at close quarters, the nine were felled by a burst of Jap fire. A call came for stretcher bearers, but Captain

Nannariello realized that moving the men to first aid stations would require considerable time and possibly be dangerous for the wounded men. Without hesitation he moved up and administered first aid. The citation states that "this was done within a few yards of the enemy position and with no protection or cover other than a thin fringe of trees and grass." Dr Nannariello graduated from Georgetown University School of Medicine, Washington, D C, in 1941 and entered the service in May 1942.

Captain Mark W. Dick

The Bronze Star Medal was recently awarded to Capt Mark W. Dick, formerly of Grand Rapids, Mich., and was accompanied by the following citation "While enemy mortar shells exploded around him, Captain Dick ran 40 yards and crawled under a barbed wire entanglement to reach a seriously wounded soldier. Finding that the nature of the man's wounds made it impossible to move him to the protection of a pillbox, Captain Dick unhesitatingly exposed himself and stood in an upright position to administer medical treatment during the intense mortar barrage." Dr Dick graduated from the University of Michigan Medical School, Ann Arbor, in 1932 and entered the service May 6, 1942.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

HOSPITAL STAFFS

The directing board of the Procurement and Assignment Service recently emphasized that hospitals will not have residents of matured experience if they do not make every effort to keep women or disqualified men on their staffs for longer periods of time, and if they do not do this they will find themselves in a situation which the Procurement and Assignment Service cannot correct for them. Some hospitals are saying that they cannot get physically disqualified residents. These hospitals, on the other hand, have never listed their names in THE JOURNAL as having vacancies. Experience indicates that this listing results in a large number of applications, which must be evaluated, but it is the only way in which physically disqualified house staff can be obtained, and it must be obtained as far as possible if any significant maturity of such staff is to exist.

Additional reasons for following the recommendation is the possibility that there may be slight increases in quotas of interns and corresponding decreases in quotas of residents for the period of July 1945 to March 1946. Present contracts for that period should be made flexible enough to arrange for some such change in quotas.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service.

(Continuation of list in THE JOURNAL August 12, page 1047)

COLORADO

Colorado Psychopathic Hospital Denver Capacity, 78, admissions, 884 Dr Charles A Rymer, Acting Director (fellowships—psychiatry)

MICHIGAN

Eloise Hospital and Infirmary (William J Seymour Hospital), Eloise Capacity, 6,432, admissions, 7,095 Dr Charley J Smyth, Medical Director (residents—surgery, medicine, eye, ear, nose and throat, September 1)

MINNESOTA

Asbury Hospital Minneapolis Capacity, 165, admissions, 5,316 Miss Lydia A Miller, Superintendent (interns, mixed residents)

PENNSYLVANIA

Fitzgerald Mercy Hospital, Darby Capacity, 191, admissions, 5,380 Sister Mary Lioba, Superintendent (3 interns, October 1).

MISCELLANEOUS

RAPID, SIMPLIFIED METHODS FOR TREATING GONORRHEA WITH PENICILLIN

Physicians of the U. S Public Health Service, Federal Security Agency, recently reported on the rapid, simplified methods for treating gonorrhea with penicillin, which require no hospital care for the patients and which can be used conveniently by physicians in private practice or by clinics. One schedule of five treatments can be completed in only seven and one-half hours, another requires additional treatment the morning of the second day. The use of either of these methods, or modifications of them, may make possible wider application of penicillin treatment to the problem of gonorrhea control in the national program to combat venereal diseases where time and circumstances do not permit the use of standard twelve to twenty-one hour treatment schedules. The new methods have been effective in almost as large a percentage of cases as the standard schedules.

The "outpatient" schedules of treatment were developed by Dr C J Van Slyke of the Public Health Service Venereal

Disease Research Laboratory, Staten Island, and Dr S Steinberg of the U S Marine Hospital, New York. The race of the patients, the length of time they had the disease and previous treatment with sulfonamide drugs apparently had no effect on the results of penicillin treatment. Many of the patients volunteered the information that a definite sense of well-being followed the injections of penicillin.

THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

At the fifty-second annual meeting of the Association of Military Surgeons of the United States, to be held at the Hotel Pennsylvania, New York City, November 2-4, addresses will be made by the nation's three surgeons general, the chief of the Veterans Administration, the commanding general of the Second Service Command and New York City's mayor. Other features of the meeting will be forum lectures, discussion panels, military and commercial scientific exhibits and medical motion pictures. The arrangements are under the direction of Col.

Lucius A. Salisbury, president of the Association of Military Surgeons of the United States, and Col. Charles M. Walson, chairman of the convention program committee.

The forum lectures will cover war surgery, chemotherapy, communicable diseases, neuropsychiatry, medical problems in theaters of operation, dental rehabilitation and equine encephalitis. Topics for discussion panels, which will be integrated with the lectures, are "War Wounds, Burns and Fractures," "Neuropsychiatric Problems," "Treatment and Prevention of Venereal Diseases," "Penicillin and Sulfonamide Therapy," "Orthopedic and Reconstruction Therapy," "Neurosurgical Problems," "Tropical Diseases in the Army and Navy" and "Aviation Medicine."

DISTRICT OFFICES OF THE DIVISION OF NURSE EDUCATION

Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, recently announced that district offices of the Division of Nurse Education, U. S. Public Health Service, are being opened in seven districts throughout the country. Where space permits, these offices will be located in the district offices of the U. S. Public Health Service. A nurse education consultant will be in charge of each district office. In given schools of nursing, Cadet Nurse Corps accounts will be verified by auditors from the district office. Representatives resident in the district offices will furnish publicity guidance and material for the recruitment of student nurses.

The first district office of the Division of Nurse Education was officially established in New Orleans at the U. S. Public Health Service District No. 4, 1307 Pere Marquette Building, 150 Baronne Street, with Miss Elsie T. Berdan, nurse education consultant, in charge.

The New York District No. 1 was opened July 17 at 119 West 57th Street. Miss Mary O. Jenny is nurse education consultant.

In Chicago District No. 3, the Division of Nurse Education office is located in the City Hall Square Building, 139 North Clark Street, and is under the supervision of Miss Jane E. Taylor, nurse education consultant.

The San Francisco office, in District No. 5, is at 1223 Flood Building, with Miss Lyndon McCarroll in charge.

Other Divisions of Nurse Education District offices will be established in the District of Columbia, Kansas City and Denver.

HOSPITAL PROJECTS RECOMMENDED IN TWENTY STATES

Hospital projects in twenty states to provide 16,000 additional beds, to cost \$70,000,000, have been recommended to the Federal Board of Hospitalization by the Veterans Administration. The new beds would include 5,000 for neuropsychiatric patients, 3,000 for tuberculosis victims and 8,000 for general medical and surgical cases. The announced program is the first in the \$500,000,000 hospital setup authorized in the "G.I. Bill of Rights" law. The new hospital facilities will be located in New Hampshire, Rhode Island, Delaware, Virginia, Florida, Michigan, Kentucky, Louisiana, Mississippi or Alabama, eastern Kansas or northern Missouri, eastern Montana or western North Dakota, Colorado, California, Texas, Washington, New York, Georgia, Ohio, Pennsylvania and Illinois.

DOCTORS USE OWN BLOOD TO SAVE WOUNDED SOLDIER

Two British army doctors each took a pint of blood from the other to save a seriously wounded soldier after the Germans had bombed a dressing station on the Normandy beach. The two physicians, Capt. D. A. Squire of Bristol and Capt. Hugh Conway of Beith, Scotland, had already sent for a fresh supply for their dwindling stock of plasma. Before it reached them, however, a bomb demolished the evacuation tent, killing some stretcher bearers and critically wounding others. There was no time to wait for the plasma, so the two doctors gave their own blood to one of the most badly wounded, thus saving his life.

PUBLIC HEALTH UNDER HITLER

NDZ of April 27, 1944 (Germany) reports that the new regulation concerning the period of service for RAD girls and the inspection which is at present being carried out provide an opportunity—a fact which will reassure many mothers of RAD girls—to draw attention to the measures which are being taken to safeguard the health of the RAD girls. The war has increased the scope of the RAD for girls on a scale such as even experts thought improbable. Work in the camps continues to consist in helping overburdened peasants' wives and mothers. The introduction of the Auxiliary War Service and the employment of RAD girls on air defense have placed yet greater emphasis on the girls' share in the war effort.

As the majority of the girls are unaccustomed to physical work and must be able to adapt themselves to camp life, definite standards must be applied in their selection. For this purpose the RAD has issued directives according to which service and labor qualifications are assessed. These directives are very helpful to the men and women doctors who carry out the inspection and the recruitment examinations. The camp doctor makes a thorough examination immediately on the girls' arrival at the camp, and the girls remain in the camp only if their health is altogether up to standard. Local general practitioners or those living nearby do duty as camp doctors. At the consulting hours and health rallies the camp doctor supervises the health of the girls. Physical defects are thus quickly recognized and remedied. Light cases receive treatment in the camp sick bay. The camp doctor is aided by a specially trained woman health assistant. All the camps are well equipped with medicaments and medical appliances.

Patients who suffer from a prolonged or more serious illness are taken to a hospital or district sick bay of the RAD for girls. The district sick bays have up to 100 beds; they have modern equipment and enable the women doctors of the RAD on duty there to use a variety of methods in examining and treating the girls. But the woman doctor in the RAD is mainly concerned with physical fitness. She is out to forestall illness and to increase performance by improving the general health of the girls. The RAD girls are trained to lead healthy lives. There are ample facilities for washing as well as shower baths; work, time off and sleep alternate suitably, food and clothing are appropriate, and the physical training is well planned. If RAD girls work outside the camp, the families to whom they go are first medically examined, so that here too there is no question of danger to the girls' health.

All these measures are of use only if the girls' minds too remain healthy. Girls who constitute a danger to the community in that respect are immediately removed. The responsibility of the RAD to the parents is too great to allow a few outsiders to jeopardize educational success. There is hardly a family which watches so carefully over the health of the girls as does the RAD. It spares no effort in seeing to the girls' health, and even anxious parents may rest assured that their daughter is well looked after. The RAD enjoys the cooperation of the entire medical profession and also trains its own women doctors in courses which are free of charge.

Pester Lloyd of April 18 (Hungary) states that, according to Laszlo Endre, the problem of doctors is a serious one. There are 13,000 doctors, including 4,000 Jews, 1,000 women doctors and 1,000 doctors who no longer practice. On principle, Jewish doctors are allowed to treat only Jewish patients, but this cannot be done in practice owing to the shortage of doctors.

The *Pariser Zeitung* of March 25, 1944 states that Dr. Grassot has made declarations to the press regarding the state of tuberculosis in France. In 1938 cases of tuberculosis amounted to 143 per 10,000 inhabitants, while in 1944 the number has risen to 170. This is due partly to undernourishment through the war and partly to psychologic causes, but in particular to the Anglo-American terror raids. In 1939 it was possible to accommodate 37,000 persons in sanatoriums, but recently the number of beds has proved insufficient. A number of spas are now to be turned into resorts for the treatment of tuberculosis.

ORGANIZATION SECTION

WASHINGTON LETTER

(From a Special Correspondent)

Aug. 14, 1944.

Proposed Health Center for Nation's Capital

How to bring hospital facilities of the nation's capital up to the level of Baltimore, Pittsburgh and other cities in the United States is now occupying the attention of national and local officials here. House and Senate subcommittees on health and hospitals have proposed establishment of a vast health center on a 20 acre plot of land, with existing hospitals to be integrated, though retaining their independent status.

Meantime, a House committee has already reviewed the situation and concluded sittings with a request for further basic information, and today (August 14) a subcommittee of the Senate District Committee begins hearings on a bill which is designed to modernize completely existing hospital services.

The capital is now a city of hospital contrasts, with the great Navy Medical Center at Bethesda, Md., and Walter Reed General Army Hospital, serving the armed forces, but with only one strictly modern private hospital for civilian patients. That one up to date institution is relatively small and in a downtown section barring expansion. Not only has Washington inadequate and overcrowded civilian hospitals, according to Senator Millard E. Tydings (Democrat, Maryland), but 50 per cent of the patient population here is housed in buildings which are serious fire hazards. The hospital bill was introduced in the Senate by Senator Tydings, with Senator Theodore G. Bilbo (Democrat, Mississippi), and in the House by Representative Jennings Randolph (Democrat, West Virginia) and Representative Thomas D'Alesandro Jr. (Democrat, Maryland). Under the bill a hospital center would be established, and into it larger existing hospitals would be merged and other smaller hospitals could be affiliated, all on a voluntary basis. Senator Tydings said that these unusual merger features were the result of a six months study by a group of public spirited citizens, who

have made surveys, exchanged views and made a concerted effort to formulate the best plans for adequate and economically operated hospital facilities here.

The hospital center, as proposed, would not have more than 1,500 beds, with complete facilities for diagnosis and treatment in all specialties. Each merged institution could thus care for its own clientele, with major economies resulting from consolidation and coordination, sponsors submit. Participating hospitals would be permitted to retain their identities as corporations, safeguarding endowments and other resources as well as tradition and good will. Overall management would be vested in a joint administrative board. It is suggested that an ideal site would cover 20 acres, which should be close to transportation facilities. Possible locations have been surveyed by the National Capital Park and Planning Commission. A dozen with suitable acreage have been recommended.

Representative D'Alesandro has called on all federal and Washington local agencies to make an immediate survey of local postwar health aid and at an open hearing, as head of the House District Subcommittee on Health and Hospitals, he appealed for postwar improvement proposals from District of Columbia government, the District Health Department and the U. S. Public Health Service. He did not indicate at the hearing that a health center was proposed. District commissioner Guy Mason advocated rebuilding of Providence, Georgetown, George Washington and Garfield hospitals and modernization of almost all other private hospitals as a first step in providing adequate protection for the expanding metropolitan population. He based his recommendations on an independent survey made several years ago by Charles F. Neergaard, New York hospital consultant. Before the House subcommittee hearing Representative D'Alesandro had proposed that a gigantic health center be built here after the war, but inability of witnesses at the House subcommittee hearing resulted in the congressman's request for further basic information.

MEDICAL ECONOMIC ABSTRACTS

COMMUNITY HEALTH AND WELFARE EXPENDITURES IN WARTIME

Changes in community health and welfare expenditures in wartime, as described in a report of the Children's Bureau, show significant changes in several trends that have existed for a number of years.¹

The study covers twenty urban areas distributed throughout the United States. The choice of localities was influenced to some degree by the existence of social service agencies which would undertake the collection of data. The disappearance of unemployment and resulting higher standards of living, together with military operations, have brought about changes in organization and administration in some fields of public service.

Family welfare and relief decreased in twenty-six out of thirty areas and cost \$360,000,000 in 1940 and \$221,000,000 in 1942. "The outstanding increase in expenditures in this field of service was for the American Red Cross." The largest increase has been 20 per cent in health service. Other increases are in group work and leisure time activities 18 per cent, child welfare service 9 per cent and "planning, financing and coordinating services" 8 per cent.

"Health was the only major field of service in which increases occurred in every area." The increase in child welfare work was due directly to withdrawal of parents and others responsible for such care for military service and war production.

"Expenditures for health services were higher in 1942 than in 1940 in every area." The total increase was almost 170 million. There was also a very significant change in the source of funds.

"Increased ability of patients to pay for service affected significantly the volume of hospitalization and, hence, the expenditures of hospitals. In 1942 hospital expenditures comprised 84 per cent of the total expenditures for health services. Including fees from patients, total hospital expenditures advanced 23 per cent between 1940 and 1942. Expenditures excluding fees increased only 8 per cent. In 1942 many people were able to pay for hospitalization either through direct payment or through hospital insurance plans. More than 10 million persons in the nation were participating in some type of hospital prepayment insurance plan at the end of 1942, compared with about 6 million at the end of 1940. Because of hospital insurance and increased earnings, many people could afford to obtain medical treatment promptly, whereas in prior years their hospitalization had to be postponed or was not received at all.

"Increased ability to pay, rather than increased morbidity," caused an increase in hospitalization that often exceeded the capacity of existing hospitals. In services supported by government or philanthropy there was a general decline. This was especially true of clinics. The main increase of public expenditures occurred in the institutional care of tuberculous and mental patients.

"Payments from recipients of service were a more important source of funds in financing the health programs in the thirty areas than in financing any of the other major fields of service."

In general there was a decline in expenditures by the federal government and an increase in support from local agencies. Even within the local field "a drop in proportion of local tax funds and a rise in fees dominated the pattern of change shown in expenditures for clinic service, which is the health service accounting for the largest part of health expenditures other than those for hospital care."

1. Schwartz, Edward E., and Sherman, Eloise R.: Community Health and Welfare Expenditures in Wartime, Children's Bureau, 1944.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ILLINOIS

Edwin Hamilton Honored.—The Kankakee County Medical Society gave a dinner in honor of Dr. Edwin S. Hamilton at the Kankakee Country Club, June 20, in appreciation of his many services to organized medicine. Guests at the dinner included officers of the Illinois State and Chicago medical societies. Dr. Hamilton was presented with a traveling bag.

Chicago

Loyola Alumni Meetings.—The Loyola University Medical Alumni Association will hold a dinner during the State Medical Society of Wisconsin meeting in Milwaukee, September 18. The dinner will be in the Pere Marquette Room of the Hotel Schroeder. Dr. George W. Leitch, Milwaukee, is chairman of the local arrangements committee and Dr. Charles E. Pechous, Kenosha, state counselor. The association will also hold a meeting during the Michigan State Medical Society meeting in Grand Rapids, September 28, in the Hotel Pantlind. Dr. Christian G. Krupp, Grand Rapids, is local chairman and Dr. Lawrence R. Banner, Kalamazoo, state counselor. The association will also hold a reunion during the Indiana State Medical Association meeting in Indianapolis, October 3. Dr. Frank B. Fisk, Indianapolis, is local chairman and Dr. Homer B. Gable, Monticello, state counselor.

Medical School Honors Graduating Class.—The University of Chicago School of Medicine will hold a banquet in honor of the 1944 graduating class in the Crystal Ballroom, Windermere East Hotel, August 31. Alumni are invited. Among the speakers at the dinner, at which Dr. Lester R. Dragstedt, professor of surgery, University of Chicago School of Medicine, will be the toastmaster, will be Brig. Gen. Percy J. Carroll, M. C., who will discuss "Medical Service in the Southwest Pacific Theater of War"; David Hellyer, president of the class of 1944, who will speak for the class; Dr. Victor Johnson, Secretary of the Council on Medical Education and Hospitals of the American Medical Association, and professorial lecturer in physiology, for the alumni, and Roland W. Harrison, Ph.D., acting dean, Division of Biological Sciences, for the faculty. Brigadier General Carroll will be introduced by Col. John R. Hall, M. C. A feature of the banquet will be the presentation of the year book, the first of its kind, which was started by the present class.

Mrs. Bevan's Will.—The will of Mrs. Anna L. Bevan, widow of Dr. Arthur Dean Bevan, disposes of \$550,000, most of which will go into a trust fund benefiting the Presbyterian Hospital of Chicago, where her husband was for many years chief surgeon. Mrs. Bevan died July 31. Three bequests to charity include \$10,000 to the Country Home for Convalescent Crippled Children, West Chicago, \$5,000 to the Visiting Nurse Association and \$5,000 to the Ridge Farm Preventorium of Lake Forest. In addition there is a provision for \$10,000 to set up the Arthur Dean Bevan Endowment Fund for the Hospital Association of Lake Forest, the income to be used perpetually for teaching and research in the hospital's surgery department. The residue of the estate, after other bequests, will approximate \$458,000 and will go into a trust fund with the First National Bank of Chicago as trustee, the income to go perpetually to the Presbyterian Hospital for teaching and research in surgery. After the death of one beneficiary of the will, the money provided will go to the Presbyterian Hospital. The trust also will be known as the Arthur Dean Bevan Endowment Fund.

IOWA

Personal.—Morningside College, Sioux City, recently conferred the honorary degree of doctor of science on Drs. Don H. O'Donoghue, Oklahoma City, and Archibald F. O'Donoghue, Sioux City. The degrees were bestowed by Dr. James H. O'Donoghue, Storm Lake, father of the two physicians.

Special Society Election.—Dr. Chester L. Putnam, Manchester, was chosen president-elect of the Iowa Public Health Association at its eighteenth annual meeting recently in Des Moines and Paul J. Houser, M.S., Des Moines, was installed as president. Hazel Roberts, R.N., Manchester, was named vice president and Dr. Carl F. Jordan, Des Moines, is secretary.

KENTUCKY

Memorial Issue for Dr. McCormack.—The *Kentucky Medical Journal* for August was designated the Arthur Thomas McCormack memorial number in honor of the late secretary of the state society and state health commissioner. The issue contains various tributes and eulogies in honor of the late physician. Dr. McCormack died Aug. 7, 1943.

LOUISIANA

Otto Schales Joins Ochsner Foundation.—Otto Schales, D.Sc., research associate in medicine and tutor in the biochemical sciences at Harvard Medical School and director of the clinical laboratories of the Peter Bent Brigham Hospital, Boston, has been appointed director of chemical research of the Ochsner Foundation and director of the biochemical laboratory at the Ochsner Clinic, New Orleans.

Special Society Election.—Dr. John R. Schenken, professor and head of the department of pathology and bacteriology, Louisiana State University School of Medicine, New Orleans, was elected president of the Louisiana Association of Pathologists at a meeting at the Charity Hospital, July 6, and Dr. Emma S. Moss, assistant professor of pathology and bacteriology at the medical school, was elected secretary-treasurer.

MASSACHUSETTS

Admission of Women Students at Harvard.—Women students will be admitted to Harvard Medical School, Boston, for the first time if the university's board of overseers sanctions a move by the Harvard Corporation on September 25, according to the *New York Times*. The medical school faculty voted to admit women last year, but the Harvard Corporation opposed the action. The corporation recently reversed its decision, and the matter now goes before the overseers, who are expected to grant approval, it was stated.

Medicolegal Conference and Seminar.—The Massachusetts Medicolegal Society in conjunction with the medicolegal departments of Harvard, Boston University and Tufts medical schools will hold an all day conference at the Mallory Institute of Pathology, Boston City Hospital, October 4. It will include lectures, demonstrations and informal discussions concerning many subjects in legal medicine, particularly stressing some of the more recent procedures. This meeting will be open to any registered physician, lawyer, police official, senior medical student or other medical investigator who may be interested and care to register. No limit in number has been made. There will be no fee for registration. While advance application is not essential, it would be helpful to those arranging the conference if notice of intention to attend is sent prior to October 1 to Dr. William H. Watters, department of legal medicine, Harvard Medical School, Boston. The Harvard Medical School, Courses for Graduates, with the cooperation of the medical schools of Boston University and Tufts College, offers a seminar in legal medicine, October 2-7, planned particularly for medical examiners and coroners physicians but open to any other suitable graduate of an approved medical school. The course will be practical rather than theoretical and will consist of necropsy demonstrations, technique and interpretation of laboratory tests, study of the day by day cases of a medical examiner, round table conferences and the many subjects now included in the widening field of legal medicine. In order that each participant may receive the maximum benefit, the enrolment has been limited to fifteen. For the seminar the fee is \$25. Application should be made on or before October 1 to Harvard Medical School, Courses for Graduates, 25 Shattuck Street, Boston 15.

MINNESOTA

Prosecution of Abortionists.—The Minnesota State Board of Medical Examiners reports that on July 6 Michael J. Koehler, a licensed chiropractor of Minneapolis, was sentenced to a term of one year in the Minneapolis Workhouse after pleading guilty to a charge of abortion. On July 8 Lillian Kruse Flick, Minneapolis, was sentenced to a term of two years in the Women's Reformatory at Shakopee following a similar plea to a similar charge. Mrs. Flick also pleaded guilty to having a prior conviction of a felony.

Personal.—Dr. Francis E. Harrington, Minneapolis, who has been acting superintendent of the Minneapolis General Hospital, has accepted the position on a conditional basis for the duration of the war, pending the appointment of a full time superintendent. Dr. Harrington recently retired as health commissioner of Minneapolis. Dr. Herbert B. Aitken was

recently honored at a dinner given by the community of Le Center, where he had been practicing for fifty years; he was presented with a purse to cover expenses of a trip to his native England and a plaque carrying the inscription "in appreciation of fifty years of faithful service as family doctor in Le Center since April 9, 1894." He was given honorary membership in the American Legion post and life membership in the Le Center Community Club. Dr. Aitkens has been a member of the local school board for forty years and president for more than thirty.—Dr. David E. McBroom has resigned as superintendent of the Minnesota Colony for Epileptics, Cambridge, to accept a similar position at the State School and Home for Feeble-minded, Redfield, S. D.

Northern Minnesota Meeting.—The Northern Minnesota Medical Association will hold a scientific meeting and business session at the Androy Hotel, Hibbing, August 26, under the presidency of Dr. Herbert H. Leibold, Parkers Prairie. Among the speakers will be:

Dr. Orwood J. Campbell, Minneapolis, Fractures of the Upper Extremities.
Dr. Moses Barron, Minneapolis, Recent Advances in Medical Therapeutics.
Dr. Lawrence E. Schneider, Duluth, Some Psychiatric Conditions Seen by the General Practitioner.
Dr. Walter C. Alvarez, Rochester, Hints in Diagnosing Puzzling Abdominal Pain.

A luncheon session will be addressed by Dr. William A. O'Brien, Minneapolis; Dr. Alvarez; Dr. Willard L. Burnap, Fergus Falls, and Dr. Edward L. Tuohy, Duluth, and a clinical x-ray pathologic conference will be held by Dr. Tuohy, and Drs. John R. McNutt, George L. Berdez and Arthur H. Wells, Duluth. Dr. Richard N. Jones, St. Cloud, is secretary-treasurer of the association.

MONTANA

State Medical Appointments.—Dr. Edmund A. Welden, Lewistown, has been appointed to the Montana State Board of Medical Examiners to succeed Dr. Alonzo T. Munro, who has moved to the state of Washington. Dr. Charles J. Bresee, Great Falls, has been reappointed a member of the state department of public health, according to the *Journal-Lancet*.

Refresher Course in Obstetrics.—Dr. John L. Parks, chief of the department of obstetrics and gynecology, Gallinger Municipal Hospital, Washington, D. C., is giving a series of courses in obstetrics throughout the state under the auspices of the division of maternal and child health of the state department of public health in cooperation with the Medical Association of Montana. The local county medical society in the different centers chosen for the lectures is host to the meeting.

NEW YORK

Edward Bausch Dies.—Edward Bausch, LL.D., chairman of the board of Bausch & Lomb Optical Company, died in Rochester, June 30, aged 89.

Association of School Physicians.—Dr. Clarence A. Greenleaf, Olean, was recently elected president of the New York State Association of School Physicians; Dr. Edgar Bieber, Dunkirk, was reelected vice president and Dr. Clara Adele Brown, Oswego, secretary-treasurer.

Teaching Days on Poliomyelitis.—On August 17 a teaching day on poliomyelitis was conducted at Syracuse University College of Medicine at Syracuse, under the sponsorship of the university, the Cayuga, Cortland, Madison, Oneida, Onondaga and Oswego county medical societies, the state medical society and the state department of health. Among the speakers will be Drs. James E. Perkins, Albany, on "Epidemiology of Poliomyelitis"; John F. Landon, New York, "Clinical Features—Pathology, Diagnosis and General Treatment"; William B. Snow, New York, "Physical Therapy in the Acute and Convalescent Stages," and Halford Hallock, New York, "Orthopedic Measures." A similar program was held at the Cumberland Hotel, Plattsburgh, August 14, under the auspices of the Clinton, Essex, Franklin and St. Lawrence county medical societies, the state medical society, the state department of health and the Clinton County chapter of the National Foundation for Infantile Paralysis, at which the speakers were Drs. A. Clement Silverman, Syracuse; Arno D. Gurewitsch, New York, and R. Plato Schwartz, Rochester. An evening session was addressed by Dr. Perkins, who is director of the state division of communicable diseases. A similar program will be presented in Alexandria Bay, August 24, under the auspices of the Hamilton, Herkimer, Jefferson and Lewis county medical societies, the state medical society, the state department of health and the Jefferson County chapter of the National Foundation for Infantile Paralysis.

New York City

Grant for Mental Hygiene.—The Commonwealth Fund has given \$10,000 to the National Committee for Mental Hygiene to provide fellowships to train psychiatrists for work with children, it is reported. Both basic training and advanced study as well as refresher courses will be provided by fellowships.

Graduate Fortnight.—"Infections and Their Treatment" will be the theme of the graduate fortnight of the New York Academy of Medicine, October 9-20. The program will consist of morning panel discussions, afternoon hospital clinics, evening addresses and scientific exhibits and demonstrations. The speakers at evening sessions will include:

Dr. Colin M. MacLeod, Factors Which Influence the Choice of Antibacterial Agents.
Brig. Gen. Hugh J. Moran, M. C., Sulfonamides in the Control of Streptococcal Infections.
Comdr. Alvin F. Coburn (MC), Mass Sulfadiazine Prophylaxis of Respiratory Diseases in the U. S. Navy.
Dr. Francis G. Blake, New Haven, Conn., Rickettsial Infections in the Southwest Pacific Area.
Brig. Gen. Stanhope Bayne-Jones, M. C., Infectious Hepatitis.
Dr. Joseph E. Moore, Baltimore, Chemotherapy of Syphilis.
John F. Mahoney, senior surgeon, U. S. Public Health Service, Chemotherapy of Gonorrhea.
Dr. Russell L. F. Cecil, Chemotherapy in Acute Upper Respiratory Infections.
Dr. William S. Tillett, Use of Penicillin in the Treatment of Pneumococcal Infections.
Dr. John H. Dingle, director, commission on acute respiratory diseases, board for investigation of epidemic diseases, U. S. Army, Primary Atypical Pneumonia.
Dr. J. Albert Key, St. Louis, Treatment of Osteomyelitis.
Capt. Lewis K. Ferguson (MC), Treatment of Burns and War Wounds.
Dr. Harrison F. Flippin, Philadelphia, Recent Developments in Sulfonamide Therapy.
Dr. Charles A. Janeway, Boston, Use of the Immune Globulin Fraction of Human Plasma in Acute Infections.
Dr. Wiley D. Forbes, Durham, N. C., Reactions of Tissues Following Infection and Their Place in an Environmental Conception of the Nature of Disease.
Lieut. Comdr. Harold J. Harris (MC), Brucellosis (undulant fever) Problems of Diagnosis and Treatment.

The Ludwig Kast Lecture will be delivered by René J. Dubos, Sc.D., on "The Mode of Action of Antibacterial Agents" and the Carpenter Lecture by Dr. Thomas Francis Jr., Ann Arbor, Mich., on "Influenza—Methods of Study and Control." The panel discussions will be devoted to pneumonia types and their response to various forms of chemotherapy, treatment of syphilis and gonorrhea and treatment of infections of the eye, ear and upper respiratory tract.

NORTH CAROLINA

Personal.—Dr. James J. Croley, Plymouth, has resigned as head of the district health department serving Tyrrell, Hyde and Washington counties.—Dr. Ottis L. Ader, Walkertown, has been named director of the venereal disease clinic of the Durham City-County Health Department, succeeding Dr. Roy H. McDowell, Dunham.—Dr. Robert B. C. Franklin, Mount Airy, has resigned as health officer of Surry County to enter military service.—Dr. James E. Hemphill has been appointed associate professor of radiology at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, effective July 1.

Opening of Schools Delayed Because of Poliomyelitis.—On August 4 the executive committee of the state board of health passed the following resolution:

In view of the grave situation which exists in North Carolina because of the epidemic of poliomyelitis, of which there have been up to this time 453 cases reported in forty-eight counties since June 1, and which has resulted in twenty-one known deaths, it is the sense of this committee that the local boards of education and those charged with the administration of all private and parochial schools defer the opening of any and all such schools until September 18, and then only if the epidemic has subsided to such an extent as to permit their opening with safety.

The action was taken after consultation with Dr. James P. Leake, Washington, D. C., epidemiologist of the U. S. Public Health Service. A release from Dr. Carl V. Reynolds, Raleigh, state health officer, stated that in 1935 the poliomyelitis epidemic began in May and had subsided by September. However, this year the outbreak did not begin until June; July registered more cases than were reported in July 1935, and there is a possibility that August of this year will show a greater number of cases than August 1935, throwing the period of abnormal incidence into the school year. On August 5 poliomyelitis had been reported in four additional counties, all in the eastern part of the state, these counties being Hyde, Pitt, Beaufort and Bertie. Dr. Reynolds stated that everything humanly possible has been done to hospitalize every infantile paralysis case in the state. At the time of his report on August 5 there were more than 150 patients at the Hickory center, nearly 60 at Charlotte and about 50 at Gastonia, all of whom are being given care never before given anywhere

Capt. Alphonse McMahon (MC), Medicine in the South Pacific.
Dr. Arthur Wright Neilson, The Use of Massive Arsenotherapy and Penicillin in the Treatment of Syphilis.
Dr. Carl A. Wattenberg, The Kidney and Hypertension.
Drs. Edward Massie, Raymond O. Muether and Robert A. Moore will participate in a round table discussion on hypertension. Speakers at evening sessions will include Frederick M. Gillies, general superintendent, Inland Steel Company, East Chicago, Ind., on "We Must Retain Free Enterprise"; Dr. Everett P. Coleman, Canton, Ill.; Dr. Maurice C. Hennessy, Council Bluffs, Iowa, and Dr. Arthur S. Bristow, Princeton, Missouri.

Changes in Status of Licensure.—At a meeting of the California Board of Medical Examiners in San Francisco, June 26-29, the following actions were taken:

Dr. Archibald A. Atkinson, North Sacramento, found guilty of violation of the business and professions code and placed on five years' probation without narcotic privileges.

Dr. Arthur Anson Bird, Oakland, found guilty of violation of the business and professions code and his license revoked.

Dr. Charles Bacon Boudwin, Los Angeles, found guilty of violation of the business and professions code (alleged illegal operation) and his license revoked.

Dr. Gustav Adolph D. Eisengraeber, Minneapolis, found guilty under the business and professions code and his license revoked.

Dr. George C. Esker Jr., Wilmington, found guilty of violation of the business and professions code and penalty deferred to the August meeting of the board.

Dr. Edward M. Lundegard, Oakland, found guilty of violation of the business and professions code (alleged aiding and abetting of unlicensed practitioner) and placed on probation for one year, with the proviso that he report at the June 1945 board meeting.

Dr. Frederick H. C. Olberg, Sacramento, found guilty of violation of the business and professions code and placed on probation for five years, without narcotic privileges.

Dr. George Edmund P. Walton, Oakland, found guilty of violation of the business and professions code (alleged aiding and abetting of unlicensed practitioner) and placed on probation for one year, with the proviso that he report at the June 1945 board meeting.

The Massachusetts Board of Registration in Medicine reports the following:

Dr. Perry C. Baird Jr., Boston, license revoked June 21 because of a mental condition.

The Pennsylvania State Board of Medical Education and Licensure recently took the following actions:

Dr. Ralph H. Armstrong, Peckville, license revoked because of his conviction in the courts of Lackawanna County for committing abortion.

Dr. Alexander J. P. Conlen, Allentown, license revoked for advertising.

The Kansas State Board of Medical Registration and Examination on June 8 took the following actions:

Dr. John C. Curtis, Kansas City, license revoked for conviction on a felony charge of narcotic violations.

Dr. Harold H. Theis, formerly of Norton, license revoked for morphine addiction; whereabouts unknown at present time.

Dr. Daniel R. Wilson, formerly of Kansas City, license restored.

LATIN AMERICA

Health Activities of Latin America.—*New Training Division of Inter-American Institute.*—A new training division in the Institute of Inter-American Affairs, created July 1, will administer the fellowship program of the food supply division as well as that of the health and sanitation division, according to the latter's *Newsletter* of July 19. The new division was formerly the professional training and health education section of the division of health and sanitation. Dr. Charles E. Shepard, formerly chief of the latter, has been made director of the professional training division, and Mr. Philip A. Hooker, formerly of the food supply division, has been appointed associate director. Health education activities will remain in the division of health and sanitation and will be administered by the medical section. The Institute of Inter-American Affairs has been assisting in the training of Latin American professional and technical personnel through the granting of fellowships for training in the United States and by the Inter-American Cooperative Health Services in the various American republics through a number of local training projects. On Oct. 8, 1942 the program started, when the board of directors of the Institute of Inter-American Affairs provided the initial funds. The grants given by the institute are noncompetitive and the power of recommendation rests with the chief of part and the minister of health or appropriate national authority in the country of the applicant. Grants for graduate study are divided roughly into two classes: fellowships for study with recognized institutions or scholars, generally for one year, and travel grants for observation of various phases of public health, these being of various lengths depending on the type of study desired. Under the training provided by the Inter-American Cooperative Health Services in other American republics, hundreds of persons have received instruction in sanitation, medical or nursing services and in methods of teaching the public and winning understanding and cooperation.

Pan American League Against Rheumatism.—Dr. Anibal Ruiz Moreno, Buenos Aires, Argentina, is the temporary chairman of the newly formed Pan American League Against Rheumatism, which consists of Argentina, Brazil, Canada, Chile, the United States, Mexico, Paraguay, Peru and Uruguay. Officers of the central committee appointed by the different countries are Dr. Ralph Pemberton, Philadelphia, president; Dr. Moreno, vice president; Dr. Loring T. Swaim, Boston, secretary, and Dr. Fernando Herrera Ramos, Uruguay. Representatives of the American Rheumatism Association to the central committee are Lieut. Col. Philip S. Hench, M. C., and Dr. Richard H. Freyberg, New York. Representatives to the regional committee are Col. Walter Bauer, M. C., and Dr. Donald F. Hill, Tucson, Ariz.

New Corresponding Members of Internal Medicine.—The Society of Internal Medicine of the Asociación Médica Argentina, Buenos Aires, has appointed as foreign corresponding members the following physicians:

Dr. David P. Barr, New York.
Dr. Edward L. Bortz, Philadelphia.
Dr. Morris Fishbein, Chicago.
Dr. Reginald Fitz, Boston.
Dr. Louis Hamman, Baltimore.
Dr. Ernest E. Irons, Chicago.
Dr. Roger I. Lee, Boston.
Dr. William S. Middleton, Madison, Wis.
Dr. John H. Musser, New Orleans.
Dr. James E. Paullin, Atlanta, Ga.
Dr. O. A. Perry Pepper, Philadelphia.
Dr. William D. Stroud, Philadelphia.
Dr. Paul D. White, Boston.

Each of the physicians has been presented with a certificate signed by the president of the society, Dr. Egidio S. Mazzei. Dr. Mazzei has invited the new members to forward short scientific papers to be read at a meeting to be held in October in Buenos Aires, at which the general discussion will concern "Anti-Infectious Chemotherapy in Internal Medicine."

Personal.—A new factor in the technic of grafting the nerve of a cadaver to a human being is now under development by Dr. Nilson de Rezende, Rio de Janeiro, Brazil. Any peripheral nerve from a fresh cadaver, no more than twenty-four hours dead, can be removed and prepared with antiseptic solutions, washed in vitamin B complex and grafted with special technic, Dr. Rezende is reported to have said in describing his own method of utilizing a glue suture with acacia powder and pectin, according to an announcement from the Pan American World Airways.—Dr. Antonio González Ochoa, chief of the laboratory of mycology at the Institute of Public Health and Tropical Diseases, Mexico City, has gone to the United States as the guest of the U. S. Department of State.

Production of New Yeast.—The Colonial Food Yeast Limited, a corporation created by the British government to finance and manage the plant, has entrusted the West Indies Sugar Company with the construction and operation of a factory; an interest free loan of \$600,000, drawn from the Colonial and Development and Welfare Fund, will serve as capital. A. C. Thaysen of the British Department of Scientific and Industrial Research is the inventor of the yeast, which is said to contain from 40 to 50 per cent protein and all B vitamins. The antipated cost is 12 cents per pound, and it is expected that one-half ounce will be sufficient to meet the average person's daily requirements of proteins and B vitamins. Cane sugar is the source of the yeast, and its discovery represents the result of research conducted by the British government to stimulate the sugar industry in the West Indies. One acre of agricultural land will produce only 70 pounds of protein annually, but sown in sugar cane the same area would become twelve times as productive, yielding 840 pounds of protein a year, it was stated.

Haiti Health Program Extended.—Inter-American health and sanitation work in Haiti is to be extended for another three years as the result of an agreement just concluded by the Haitian government with the Institute of Inter-American Affairs. Inter-American health work has been under way in Haiti for more than two years and has involved malarial control and installation of sanitation facilities, largely to support war activities of the island republic. Under the new agreement the work is to be continued and will be financed by a joint fund. Haiti has agreed to contribute \$150,000 to the joint fund, and the institute has agreed to contribute \$300,000. Haiti is the twelfth of the other American republics to extend inter-American health work. Under the program, eighteen of the other American republics are making a united effort to elevate health standards in the hemisphere with financial and technical aid from the United States. Dr. George C. Dunham, vice president of the Institute of Inter-American Affairs, signed the new agreement on behalf of the institute.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 15, 1944.

Enlargement of the Council of the Royal College of Surgeons

The governing body of the Royal College of Surgeons, its council, is elected by the college fellows, a majority of whom are general surgeons. The result is that the council consists of general surgeons with only rare exceptions. The great development of specialism in modern times has rendered the practical exclusion of specialists from the council an anomaly which the present council proposes to remove. The council has sent a letter to the bodies representing ophthalmology, otolaryngology, radiology, anesthetics and general practice stating that it is felt to be increasingly important to ensure representation on the council of branches of practice which at any time may not have representation by the ordinary process of election. The council therefore will apply for such alterations in the charters as will enable it to appoint additional members for this purpose. It is intended that such appointed members may be fellows or members of the college of the same seniority as that required for those seeking election to the council, that such members shall be appointed annually after consultation with the bodies representing the different branches of practice, that the same individual shall not be eligible for reappointment beyond five years and that such appointed members shall not have the right of voting for election of the president or vice president. These proposals require alterations in the charters of the college, application for which will not be accepted till after the war. But the council considers that it should have at an early date the assistance in its deliberations of those branches not represented by any of the elected members. The present members have decided forthwith to invite representatives of these groups to attend the council meetings. The council members do not have the power to grant voting rights to those invited, but the guests will have every opportunity to express their views. The council has invited the following bodies to suggest names: the councils of British ophthalmologists, the Association of Anesthetists, the British Association of Otolaryngologists, the Faculty of Radiologists and (for general practice) the British Medical Association.

The Relief of Liberated Europe

At a conference organized by the Socialist Medical Association and the Fabian International Bureau to discuss medical relief and food supplies for needy countries after the war, some appalling facts were given of the effects of the German occupation of the countries of Europe. Dr. B. H. Sajet of the Netherlands gave recent statistics on the increase of disease there, which he said afforded some index of the conditions in other occupied countries. The incidence of diphtheria had risen from 1,273 cases in 1939 to 53,000 in 1943, he said, and over the same period the incidence of bacillary dysentery rose from 700 to 5,300 cases, and of poliomyelitis from 400 to 1,947 cases. The mortality from phthisis almost doubled between 1939 and 1942. Dr. A. Kleinzeller of Czechoslovakia reported that in one region of his country, with a population of 2 to 3 million, the incidence of typhus, which used to be 3 or 4 cases a year, was now more than 400 cases in three months. In some districts more than half the population have dysentery and more than half the infants die in their first year.

Dealing with the danger of epidemics in the liberated countries, Dr. Philip D'Arcy said that we should now be preparing teams of experts in epidemiology, not only doctors but also nurses and technical and social workers. Dr. Marc Daniels spoke of the great increase in Europe in the incidence and

mortality of tuberculosis. We must begin by improving nutrition and the standard of living, he said.

Prof. J. R. Marrack dealt with food supplies. The minimal requirement of a man was estimated at 2,000 calories daily. In Greece the average is about 1,000, in Belgium 1,400, in Europe as a whole about 1,400. Of the 400 million people in Europe, about 250 million will need help, he estimated. By 1941 milk production had fallen by a third in Denmark and meat by more than a third. If Europe is to be fed, well fed countries like Britain and the United States must eat less, it was concluded.

Sir Cuthbert Wallace: A Great War Surgeon

Sir Cuthbert Wallace, a former president of the Royal College of Surgeons, died recently in his seventy-seventh year. Among much important work, administrative as well as surgical, his services to war surgery were noteworthy. His experience in this branch was considerable, beginning with the South African war in 1899. During the first world war he was consulting surgeon to the first army of the British Expeditionary Force. His greatest achievement was the part he played in placing abdominal surgery in the classification of field surgery in war. This is well described in the *British Medical Journal* by another distinguished war surgeon, Surgeon Rear Admiral Gordon-Taylor. At the beginning of the first world war administrative authority was strongly opposed to operative intervention in gunshot wounds of the abdomen, basing this view on experience in the South African war. The evidence soon convinced Wallace that operative surgery in the forward area must be invoked if those suffering from frightful lacerations of the intestine and bleeding wounds of the mesentery were to be saved. He surreptitiously carried instruments in his pockets to forward surgical formations to implement those whose surgical activities in the abdomen was handicapped by lack of facilities. As a result of his connivance abdominal surgery in the field was born, and in the early months of 1915 the late John Campbell successfully operated on the first gunshot wound of the stomach, Owen Richards performed the first successful small intestine resection and Claude Frankau the first resection of the colon for gunshot injury.

Treatment of Carcinoma of the Prostate

A discussion took place at the Section of Urology of the Royal Society on the treatment of carcinoma of the prostate. Mr. Clifford Morson said that operations were aimed at eradicating the growth or relieving the obstruction. In attempts at radical surgery the ureters must be transplanted and the bladder and prostate removed, he stated. Having found that patients did not survive this formidable operation longer than five years, he said, he had abandoned it. But the results of inserting radium needles proved no better. He condemned castration, but later speakers did not agree with this. Mr. Kenneth Walker believed that it relieved symptoms in some patients but that endocrine treatment was better. There was general agreement as to the value of diethylstilbestrol. Mr. E. W. Riches was impressed with the dramatic results: He gave 1 mg. three times a day to begin with and worked up to 20 mg. three times a day. It was admitted, however, that the duration of the improvement still remained in doubt.

University College to Reopen

It has been decided to bring back to London, for the next university session, beginning in October, the university faculties of Arts, Science and Engineering, which have been evacuated for five years. The faculty of medicine which is attached to University College Hospital was not evacuated. Considerable damage was done to the college by German bombs. Almost the whole of the Faculty of Arts was destroyed. It will be housed in temporary quarters, which are now being prepared.

TEL-AVIV, PALESTINE

(From Our Special Correspondent)

July 6, 1944.

Smallpox

In January an infant of 4 weeks was brought to the Municipal Hospital in Tel-Aviv suffering from hernia of the umbilicus. It had a rash on the body, which developed quickly into smallpox. The entire section of the hospital was at once declared under quarantine. Three children in the same ward contracted the disease. Two of them died, and the third suffered an acute form of smallpox. By means of strict quarantine, and thanks to the fact that in this country children are vaccinated against smallpox at an early age, the epidemic was localized and no further cases occurred. The origin of the first case was investigated, and it was found that the father of the infant was employed outside Tel-Aviv in a locality where there were some cases of smallpox; evidently he had transferred the disease to the infant without contracting it himself.

Recently a slight epidemic of smallpox broke out in Haifa, where 20 cases have occurred. The medical authorities are in control of the situation.

On April 1 several cases of smallpox were discovered in the southern parts of the country, and by the end of the month these had reached the proportions of a light epidemic. There were 40 cases, all among the Arab fellahin and Bedouins. Strangely enough, the number of children who contracted the disease was small; most of the patients were adults, including some elderly men. This is explained by the fact that the adults had not been vaccinated in childhood, or if they had been vaccinated the immunity had expired. There have been only 4 fatal cases. The department of health of the government of Palestine and the health institutions of the Jewish community have taken steps to localize the epidemic and to vaccinate large numbers of the population.

Leishmaniasis of the Skin

The main home of leishmaniasis in Palestine is considered the ancient city of Jericho and its surroundings north of the Dead Sea. In the Jewish settlement south of the Dead Sea this disease is unknown. In 1926 Dr. Dostrowsky discovered a few nests in some quarters of Jerusalem. Dr. Sternfeld has now published a summary of 189 cases which he encountered in the North of Palestine in 1938-1943. Published in *Harefuah*, the journal of the Palestine Jewish Medical Association, his conclusions are as follows:

1. Leishmaniasis, an endemic disease in Palestine, is continually spreading. Haifa and the northern part of Palestine, which were heretofore considered free from Leishmaniasis, have also become nests of this disease during recent years.

2. The spreading of the disease from its original foci in the neighborhood of the Dead Sea and Jericho is apparently connected with the industrial development of this district. Immigration from affected regions like Aleppo, and the habit of the Arabs of leaving it untreated, are additional contributory factors to the spread of the disease.

3. New centers of leishmaniasis are bound to appear in the North if the sporadic cases are not discovered early and radically treated.

Activities of Kupat Holim in Infant Welfare Stations and Schools

In 1943, 31 infant welfare stations were maintained by Kupat Holim, the sick fund of the general federation of Jewish labor in Palestine. In addition, ninety agricultural settlements were visited by a children's doctor, and fifty schools were under medical supervision.

Kupat Holim, through its infant welfare stations, serves a third of the Jewish infants of the country. Of the 10,000 infants born to Jewish parents, Kupat Holim takes care of 30 per cent,

Hadassah 40 per cent and the municipality of Tel-Aviv 28 per cent. Infant mortality of the infants treated in the infant welfare stations declined from 3 per cent in 1936 to 1 per cent in 1942.

Nearly 7,500 children in fifty schools are under the supervision of Kupat Holim. The first aim of medical supervision over schools is prevention of the spread of infectious diseases. During 1941, convalescent camps were arranged for 572 children, 547 children received dental treatment, 328 children received orthopedic treatment and 131 children were fitted with glasses. Trachoma has become almost nonexistent. Pediculosis has dropped from 13-19 per cent to 3 per cent.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Aug. 12, page 1059.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various centers, Nov. 13-15. Part III. Various centers, September or October. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Part I. Various centers, Jan. 19. Final date for filing application is Oct. 21. Sec., Dr. P. M. Wood, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written*. Part I. Various centers, February. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 5-7. Los Angeles, January. Final date for filing application is Oct. 1. New York, June. Chicago, October. Final date for filing application is Dec. 1. Sec., Dr. S. Judd Beach, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY: Oral. Chicago, Oct. 4-7. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Oral*. New York, April 14-15. Final date for filing application is Dec. 15. Chicago, May 19-20. Final date for filing application is Jan. 19. Sec., Dr. C. A. Aldrich, 115½ First Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: *Oral*. New York, December. Final date for filing application is Sept. 30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N.W., Washington 6, D. C.

Society Proceedings

COMING MEETINGS

Aero Medical Association of the United States, St. Louis, Sept. 4-6. Dr. David S. Brachman, 5440 Cass Ave., Detroit 2, Secretary.

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 8-12. Dr. W. L. Benedict, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 7-9. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Congress of Physical Therapy, Cleveland, Sept. 6-9. Dr. Richard Kovacs, 2 East 88th St., New York 28, Secretary.

American Hospital Association, Cleveland, Oct. 2-6. Mr. George P. Bugbee, 18 East Division St., Chicago, Executive Secretary.

American Pediatric Society, Atlantic City, N. J., Sept. 25-27. Dr. Hugh McCulloch, 325 N. Euclid Ave., St. Louis 8, Secretary.

American Public Health Association, New York, Oct. 3-5. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Roentgen Ray Society, Chicago, Sept. 24-29. Dr. H. Dabney Kerr, University Hospitals, Iowa City, Secretary.

Colorado State Medical Society, Denver, Sept. 27-29. Dr. John S. Bouslog, 537 Republic Bldg., Denver 2, Secretary.

Delaware Medical Society of, Lewes, Sept. 11-12. Dr. W. O. La Motte, 601 Delaware Avenue, Wilmington, Secretary.

District of Columbia Medical Society of the, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Secretary.

Indiana State Medical Association, Indianapolis, Oct. 3-5. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis 4, Executive Secretary.

International College of Surgeons, U. S. Chapter, Philadelphia, Oct. 3-5. Dr. Desiderio Roman, 250 South 17th St., Philadelphia, Secretary.

Kentucky State Medical Association, Lexington, September 18-20. Dr. P. E. Blackerby, 620 S. Third St., Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 27-29. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Secretary.

Mississippi Valley Medical Society, Peoria, Ill., Sept. 27-28. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Northern Minnesota Medical Association, Hibbing, Aug. 26. Dr. R. N. Jones, 8 Sixth Ave. N., St. Cloud, Secretary.

Oregon State Medical Society, Portland, Sept. 2-3. Dr. Thomas D. Robertson, St. Vincent's Hospital, Portland, Secretary.

Pennsylvania Medical Society of the State of, Pittsburgh, Sept. 19-21. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh 22, Secretary.

Radiological Society of North America, Chicago, Sept. 24-26. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse, N. Y., Secretary.

Utah State Medical Association, Salt Lake City, August 21-26. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Wisconsin State Medical Society of, Milwaukee, Sept. 18-20. Mr. Charles H. Crownhart, 110 E. Main St., Madison 3, Secretary.

Deaths

Andrew Porter Biddle Ⓢ Detroit; Detroit College of Medicine, 1886; an Affiliate Fellow of the American Medical Association; since 1917 emeritus professor of dermatology and syphilology at his alma mater, now known as the Wayne University College of Medicine; formerly professor of dermatology at the Detroit Post-Graduate School of Medicine; in addition to serving as secretary and counselor to the Michigan State Medical Society, he had been president for two successive terms from 1916 to 1918; formerly secretary of the Wayne County Medical Society; a member and past president of the Detroit Academy of Medicine; first president of the Detroit Dermatological Society in 1922; member of the Chicago Dermatological Society; member of the American Dermatological Association, serving as president in 1925-1926; fellow of the American College of Physicians; specialist certified by the American Board of Dermatology and Syphilology; for six years a member of the state board of health; a member of the board of education of Detroit from 1917 to 1925, when he became president; a member of the Detroit Library Commission for many years and president in 1931; served for a long period in the Michigan National Guard and had been commissioned major and surgeon of the 31st regiment during the Spanish-American War; in 1892 appointed U. S. Pension Examining Surgeon; consultant on the staffs of Receiving Hospital, St. Mary's, Woman's Hospital, Children's Hospital, St. Joseph's Mercy Hospital, the Protestant Children's Home of Detroit and the Detroit Board of Health; in recognition of his loyal and continuous service, the state medical society created the annual Andrew P. Biddle Oration; in 1929 received the honorary degree of doctor of science from the College of the City of Detroit and in 1935 the honorary degree of master of arts from the University of Michigan, Ann Arbor, "in recognition of a life devoted to the advancement of education and ethics in the medical profession"; member of the Naval and Military Order of the Spanish-American War and a Companion of the Military Order of Foreign Wars; first editor of the *Journal of the Michigan State Medical Society*, serving from 1902 to 1906; died August 2, aged 82.

Rudolph Jerome Price, Dayton, Ohio; University of Michigan Medical School, Ann Arbor, 1923; member of the Ohio State Medical Association, American Roentgen Ray Society, Radiological Society of North America, Inc., and the American College of Radiology; specialist certified by the American Board of Radiology; intern at the Miami Valley Hospital, 1923-1924; awarded the French Croix de Guerre for services during World War I; recently appointed by the army as a consultant at Wright Field; radiologist at the Good Samaritan Hospital; secretary of the Dayton Hospital board; died June 8, aged 48, of injuries received in an automobile accident.

Winfred Wilson Ⓢ Memphis, Texas; Johns Hopkins University School of Medicine, Baltimore, 1904; member and past president of the Panhandle District Medical Society; at one time professor of pathology at the Baylor University College of Medicine, Dallas; for many years health officer of the city of Memphis and of Hall County; operated the Memphis Hospital; since 1917 local surgeon for the Fort Worth and Denver Railroad; during World War I, chairman and physician for the Selective Service Board number 1 in Hall County, and chairman of the Hall chapter of the American Red Cross; died in the Union Memorial Hospital, Baltimore, May 1, aged 64, of coronary occlusion and peritonitis following intestinal obstruction.

Charles William Farr Ⓢ Major, U. S. Army, retired, Buffalo; University of Vermont College of Medicine, Burlington, 1897; veteran of the Spanish-American War; entered the U. S. Army as an assistant surgeon in 1901; became a captain in 1906; retired as a major in 1910 because of disability in line of duty; returned to active duty intermittently until Aug. 15, 1932, when he was again retired; formerly professor of military science and tactics at the University of Buffalo School of Medicine; at one time physician at the Sing Sing Prison; died in the Edward J. Meyer Memorial Hospital July 11, aged 68, of cerebral thrombosis.

Frank Henry Hacking, Minneapolis; Rush Medical College, Chicago, 1899; member of the Minnesota State Medical Association; one of the founders of the Minnesota Association for Crippled Children; a director of the Hennepin County Tuberculosis Association; attending specialist in charge of the tuberculosis department of the U. S. Veterans Bureau from

1919 to 1926; served as physician in charge of the Hopewell and Thomas tuberculosis hospitals, on the staff of the Glen Lake Sanatorium, Oak Terrace, and the Fairview Hospital, where he died June 2, aged 72, of coronary occlusion and cerebral thrombosis.

Charles Edward Caine Ⓢ Morris, Minn.; University of Minnesota College of Medicine and Surgery, 1896; served for many years as a member of the state board of medical examiners, of which he had been past president; since January 1942 mayor of Morris; for six years member of the city commission; served as city and county physician, as county coroner for many years and as member and president of the local board of education; medical director and owner of the Morris Hospital; surgeon in Morris for the Great Northern and Northern Pacific railways; died April 15, aged 75, of coronary occlusion.

Burton Whitford Christie Ⓢ Omaha; Omaha Medical College, 1902; past president of the Omaha-Douglas County Medical Society; served as assistant professor of medicine and pediatrics at the University of Nebraska College of Medicine; for many years on the staff of the Immanuel Hospital; surgeon for the Burlington Railroad; died in a Portland, Ore., hospital May 27, aged 66, of heart disease following pulmonary edema.

William Harvey Cooke Ⓢ East Orange, N. J.; Boston University School of Medicine, 1888; a founder of the Homeopathic Hospital of Essex County, now known as the East Orange General Hospital, of which he had been a member of the board of directors and where he died June 6, aged 77, of cerebral hemorrhage.

William Seward Dart, Oneonta, N. Y.; Eclectic Medical College of the City of New York, 1890; member of the Medical Society of the State of New York; member of the associate staff of the Aurelia Osborn Fox Memorial Hospital, where he died June 13, aged 78, of uremia.

George Pitzer Dougherty, Farina, Ill.; Barnes Medical College, St. Louis, 1911; died June 5, aged 56, of coronary thrombosis.

Francis G. Earley Ⓢ Ridgway, Pa.; Jefferson Medical College of Philadelphia, 1885; on the staff of the Andrew Kaul Memorial Hospital, St. Marys; died May 7, aged 80, of carcinoma of the left lung.

Edwin M. Stanton Edwards Ⓢ Trinway, Ohio; Baltimore Medical College, 1898; died in the City Hospital, Coshocton, June 11, aged 71, of pneumonia.

Herman Frederick Fraser, Detroit; Detroit College of Medicine and Surgery, 1927; member of the Michigan State Medical Society; interned at the Henry Ford Hospital; member of the staff of Northwestern Branch of Grace Hospital; died in the Woman's Hospital June 5, aged 56, of coronary occlusion.

Cornelius J. Geenen Ⓢ Grand Rapids, Mich.; State University of Iowa College of Medicine, Iowa City, 1926; senior surgeon, Butterworth Hospital, where he died June 7, aged 47, of agranulocytosis.

Abraham Chester Green, Chicago; Northwestern University Medical School, Chicago, 1910; member of the city health department; died in the Wesley Memorial Hospital June 7, aged 57, of bronchopneumonia, chronic myocarditis and chronic glomerular nephritis.

Franklin Jacob Hahn Ⓢ Bath, Pa.; Jefferson Medical College of Philadelphia, 1895; served for many terms on the school board; director and vice president of the First National Bank; died June 4, aged 73, of heart disease.

Jabez Masten Harman, Floyd, Va.; University of Louisville (Ky.) Medical Department, 1891; member of the Medical Society of Virginia; coroner and chairman of the Floyd County Board of Health; died June 3, aged 77, of injuries received in an automobile accident.

Elizabeth Mercelis, Montclair, N. J.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1892; served on the staffs of the Mountainside and St. Vincent's hospitals; formerly member of the board of health and school physician; died June 1, aged 75, of coronary occlusion.

James Leland Merrell, Hoxie, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1924; also a pharmacist and lawyer; member of the Arkansas Medical Society; president of the Lawrence County Medical Society; served in the medical corps of the U. S. Army during World War I; member of the board of education; on the staff of the Missouri Pacific Hospital, Little Rock; surgeon of the Missouri Pacific Rail-

road Company; died in Little Rock June 12, aged 55, of carcinoma of the lung.

Hugo Neukamp, Hosmer, S. D.; Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, Germany, 1898; member of the South Dakota State Medical Association; killed in an automobile accident June 1, aged 68.

Edwin Plassnig, Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1925; member of the Medical and Chirurgical Faculty of Maryland; served during World War I; physician for the Baltimore Transit Company; on the staffs of the Mercy Hospital and the South Baltimore General Hospital, where he died June 6, aged 47, of chronic glomerulonephritis.

Harry Allen Richter Ⓢ Kenilworth, Ill.; Northwestern University Medical School, Chicago, 1923; member of the American Heart Association and the American Therapeutic Society; fellow of the American College of Physicians; intern at the Kings County Hospital in Brooklyn, 1923-1924; member of the staff of the Swedish Covenant Hospital, Chicago, and cardiologist at St. Francis Hospital, Evanston, where he died July 8, aged 47, of carcinoma of the bladder and rectum.

Daniel Rutgers Robert Ⓢ New Lebanon Center, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1911; served during World War I; served as health officer of Canaan and New Lebanon Center; attending physician at the Berkshire Industrial Farm, Canaan, where he died June 21, aged 59, of coronary thrombosis.

Robert Rosenberg, Brooklyn; Fordham University School of Medicine, New York, 1917; died in the Flower and Fifth Avenue Hospitals June 13, aged 55, of tumor of the brain.

Harry Preston Sayle, Tillatoba, Miss.; University of Louisville (Ky.) Medical Department, 1912; died May 10, aged 57, of acute dilatation of the heart.

Peter Arthur Scheurer Ⓢ Manchester, Mich.; Detroit College of Medicine, 1908; member of the school board and the village council; president of the People's Bank; for many years a member of the staff of the Mercy Hospital, Jackson, where he died June 9, aged 59, of myocardial failure.

Elisha Lewis Sencindiver, Martinsburg, W. Va.; University of Maryland School of Medicine, Baltimore, 1891; one of the founders of the King's Daughters' Hospital; died June 19, aged 77, of coronary thrombosis.

William Ward Seward, Surry, Va.; Medical College of Virginia, Richmond, 1897; member of the Medical Society of Virginia; past president of the Post-Graduate Medical Society of Southside Virginia; chairman of the medical advisory board for Surry and Sussex counties during World War I; died May 5, aged 70, of pyelonephritis.

Marshall J. Shaw, Plainview, Texas; University of Tennessee Medical Department, Nashville, 1892; died April 30, aged 91, of cerebral hemorrhage.

Charles Almon Sheely, Gulfport, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1898; member of the Mississippi State Medical Association; formerly associated with the U. S. Public Health Service; served as district surgeon for the Louisville and Nashville and the Illinois Central railroads; died in the King's Daughters' Hospital May 19, aged 75, of cerebral hemorrhage.

Dustin Samuel Shiepe, Springfield, Mass.; Tufts College Medical School, Boston, 1943; intern at the Mercy hospital, where he died May 26, aged 26, of coronary thrombosis.

James Young Simpson Ⓢ Evanston, Ill.; College of Physicians and Surgeons, New York, 1882; an Affiliate Fellow

of the American Medical Association; member of the Missouri State Medical Association; died May 2, aged 83, of cerebral thrombosis.

John Siveke Ⓢ Passaic, N. J.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1913; chief medical inspector for the public schools in Passaic; on the staff of the Passaic General Hospital; died May 9, aged 59, of cerebral hemorrhage, hypertension and arteriosclerosis.

Alexander Soble, Elmira, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1922; member of the Medical Society of the State of New York; on the staff of St. Joseph's Hospital; died June 11, aged 46, of accidental barbitol poisoning.

Edward Isaac Stanley Ⓢ Albany, Ohio; Starling Medical College, Columbus, 1898; died May 9, aged 69, of coronary thrombosis.

Ichabod Thomas Sutton, Prattville, N. Y.; Albany (N. Y.) Medical College, 1890; member of the Medical Society of the State of New York; served as county coroner and as health officer of Prattville and Ashland; died May 12, aged 81, of diabetes mellitus and general arteriosclerosis.

Otto William Thie Ⓢ St. Louis; St. Louis University School of Medicine, 1912; visiting physician on the staff of the Missouri Pacific Hospital; died May 31, aged 69, of heart disease.

Oscar Theodore Thomas, Cleveland; University of Pennsylvania Department of Medicine, Philadelphia, 1892; formerly assistant clinical professor of gynecology at the Western Reserve University School of Medicine; a member of the staff of the Woman's Hospital and formerly on the staffs of the Charity Hospital and the City Hospital, where he died June 3, aged 74.

David Chester Thompson Ⓢ Assistant Surgeon, Lieutenant, U. S. Navy, retired, Jacksonville, Fla.; Manitoba Medical College, Winnipeg, Man., Canada, 1905; retired from the Navy

Dec. 16, 1921; medical officer for the U. S. Sugar Corporation, Azucar; died in Pahokee June 5, aged 63, of diabetes mellitus.

Francis Meredith Vessells, Perryville, Mo.; Missouri Medical College, St. Louis, 1899; served as a major in the medical corps of the U. S. Army during World War I; died May 23, aged 69, of cardiorenal disease.

KILLED IN ACTION

William Ireys Hunt, Greenville, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1942; served an internship at the Charity Hospital, New Orleans; began active duty in the medical corps, Army of the United States, as a first lieutenant on June 30, 1943; later promoted to captain; cited for heroism in crawling under fire to relieve the sufferings of wounded Americans and Japanese; killed in action on Bougainville June 5, aged 30.

George Emmanuel Mortis, Peabody, Mass.; Middlesex College of Medicine and Surgery, Waltham, 1932; served as city physician; commissioned a first lieutenant in the medical corps, Army of the United States, on July 11, 1942; later promoted to captain; awarded the Purple Heart; died on the isle of Capri January 1, of wounds received in action, aged 38.



CAPT. WILLIAM I. HUNT
M. C., A. U. S., 1913-1944



CAPT. GEORGE E. MORTIS
M. C., A. U. S., 1905-1944

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below

American Heart Journal, St. Louis

27:611-754 (May) 1944

- Effect of External Heat and Cold on Patients with Angina Pectoris: Evidence for Existence of Reflex Factor. A. S. Freedberg, E. D. Spiegel and J. E. F. Riseman.—p. 611.
- Occupational Potentialities of Cardiac Patients Beatrice Kresky and L. J. Goldwater.—p. 623.
- Problem of Rheumatic Fever in Navy. A. M. Master.—p. 634.
- *Effect of Intravenously Administered Digoxin and Ouabain on Systemic Venous Pressure of Patients with Congestive Heart Failure. L. W. Eichna and H. Taube.—p. 641.
- Further Observations on Ischemia Injury Pattern Produced in Dog by Temporary Occlusion of Coronary Artery Incomplete T Diversion Patterns, Theophylline T Reversion and Theophylline Conversion of Negative T Pattern. R. H. Bayley, J. S. La Due and Dorothy Joseph York.—p. 657.
- Persistent Displacement of RST Segment in Case of Metastatic Tumor of Heart. F. F. Rosenbaum, F. D. Johnston and V. V. Alzamora.—p. 667.
- Heart Block: Influence of Ventricular Systole on Auricular Rhythm in Complete and Incomplete Heart Block. A. E. Parsonnet and R. Miller.—p. 676.
- Congenital Cardiac Disease Bibliography of 1,000 Cases Analyzed in Maude Abbott's Atlas, with an Index D. deF. Bauer and E. C. Astbury.—p. 688.

Intravenous Digoxin and Ouabain in Congestive Heart Failure.—While studying the circulatory effects of purified cardiac glycosides a rapid fall of the elevated venous pressure was encountered when these drugs were administered intravenously to patients with congestive heart failure. The subjects of the study by Eichna and Taube were hospitalized patients with organic heart disease of widely varying kinds. All had congestive heart failure. Venous pressure was measured in the antecubital veins by the direct method, using a manometer filled with isotonic solution of sodium chloride. The ventricular rate was counted, always for one full minute, by auscultation over the precordium. Arterial blood pressure was measured by the usual auscultatory method, employing a mercury manometer. Electrocardiograms were obtained by the standard limb leads. To ascertain the rate of the flow of urine, a catheter was placed in the urinary bladder and allowed to drain continuously. At ten minute intervals the amount of urine collected was measured, removed and recorded. These measurements were made frequently and often simultaneously, throughout an adequate control period and for two to four hours after injection of the glycoside. Thereafter, they were made daily or less frequently. The authors found the administration of single therapeutic doses of "Digoxin" and ouabain induced rapid improvement in the circulatory dynamics of patients with congestive heart failure. A rapid fall of the elevated venous pressure was the most striking and constant effect. It had the following characteristics: Onset of effect: ouabain three to eleven minutes, digoxin five to twenty-two minutes. Major effect: ouabain thirty-five to fifty-six minutes, digoxin forty-five minutes to three hours. It was associated with, but not dependent on, slowing of the ventricular rate when the cardiac mechanism was auricular fibrillation. It was unaccompanied by a change in ventricular rate when the cardiac mechanism was normal. It preceded the onset of diuresis, which at times was rapidly initiated. Its pattern did not depend on the initial level of venous pressure or the degree of congestive heart failure. It bore no relationship to changes in the electrocardiogram. Its duration was relatively short except in those patients whose cardiac reserve was sufficient to maintain circulatory compensation once it was reestablished. Compared molecule for mole-

cule, ouabain induced effects more rapidly than digoxin. Large doses of these two glycosides at times induced toxic complications. The intermediate doses were free of these effects and therapeutically just as effective.

Anesthesiology, New York

5:225-328 (May) 1944

- *Production of Negative Pressure in Respiratory Tract by Ciliary Action and Its Relation to Postoperative Atelectasis. A. C. Hilding.—p. 225.
- Survival of Preserved Red Cells After Transfusion. O. F. Denstedt, Dorothy E. Osborne, H. Stansfield and I. Rochlin.—p. 237.
- Rh Factor. C. C. Collins and M. J. Nicholson.—p. 254.
- Diffusion Respiration in Dog Anesthetized by Pentothal Sodium. W. B. Draper and R. W. Whitehead.—p. 262.
- Analysis of Inhalation Anesthesia by Graphic Means. P. Saunders.—p. 274.
- Studies on Paraldehyde: II. Median Lethal Dose, LD₅₀, of Paraldehyde for Both Young and Old Rats on Two Dietary Regimens. G. W. Phillips, E. B. Carmichael and F. A. Kay.—p. 287.
- Anesthesia: X. Irritative Action of Volatile Anesthetics on Mucous Membranes and Relationship Between Potency and Chemical Constitution. J. C. Krantz Jr., C. J. Carr and W. E. Evans Jr.—p. 291.

Ciliary Action in Respiratory Tract and Postoperative Atelectasis.—Hilding describes experiments which demonstrated that ciliary power acting on masses of occluding mucus can produce negative pressure in both the upper and lower parts of the respiratory tract. Steps in the production of postoperative pulmonary atelectasis seem to be about as follows: (1) production of an excessive amount of secretion; (2) formation of occluding masses in the air passages partly because of reduced respiration through splinting of diaphragm and pain and because the patient lies quietly in one position; (3) movement of a succession of these masses upward in the tract by ciliary action; (4) removal of a quantity of air by each of these masses; (5) progressive shrinkage of the affected lobes as air is removed; (6) compensatory distention of neighboring lobes; (7) production of considerable negative pressure within an affected lobe when the contained air has been exhausted; (8) immobilization of the mucus in the bronchus by atmospheric pressure.

Surgery, St. Louis

15:681-868 (May) 1944

- *Hyperinsulinism: Report of Surgical Treatment of 3 Patients. H. G. Bell, L. Goldman, L. S. Craig and H. McCorkle.—p. 681.
- Implantation of Pancreatic Duct into Gastrointestinal Tract. Experimental and Clinical Study. E. J. Poth.—p. 693.
- Surgical Management of Duodenal Diverticula. H. E. Pearse.—p. 705.
- Treatment of Large Bowel Obstruction. Transverse Colostomy—Incidence of Incompetence of Ileocecal Valve: Experience at University of Minnesota Hospitals. C. Dennis.—p. 713.
- Cast and Precast Cartilage Grafts: Their Use in Restoration of Facial Contour. F. Young.—p. 735.
- Surgical Treatment of Long Standing Deep Phlebitis of Leg: Preliminary Report. R. W. Buxton, J. M. Farris, C. A. Moyer and F. A. Collier.—p. 749.
- *Swelling of Upper Extremity Following Radical Mastectomy. C. Holman, B. McSwain and J. M. Beal.—p. 757.
- Significance of Nitrogen Loss in Exudate from Surface Burns. J. W. Hirschfeld, H. H. Williams, W. E. Abbott, C. G. Heller and M. A. Pilling.—p. 766.
- Bullet Wounds of Lungs: Experimental Study. R. A. Daniel Jr.—p. 774.
- Surgical Treatment of Chronic Pulmonary Abscess. G. L. Lindskog.—p. 783.
- Surgical Treatment of Bronchiectasis: Factors Influencing Postoperative Morbidity and Mortality. H. C. Maier.—p. 789.
- Surgical Treatment of Congenital Atresia of Esophagus. G. H. Humphreys.—p. 801.
- Transfusion of Massive Volumes of Citrated Whole Blood and Plasma in Man: Clinical Evidence of Its Safety. J. G. Allen, D. E. Clark, T. F. Thornton and W. E. Adams.—p. 824.
- Blood and Plasma Transfusion Service. P. I. Hoxworth.—p. 832.
- Gelatin as Plasma Substitute: Preliminary Report of Clinical Experience. C. E. Koop, A. G. Fletcher Jr., C. Riegel and J. S. Lockwood.—p. 839.
- Effect of Dicumarol on Susceptibility to Action of Heparin. J. Walker and J. E. Rhoads.—p. 859.

Surgical Treatment of Hyperinsulinism.—Bell and his associates report 3 cases in which operation was performed for hypoglycemia resulting from hyperinsulinism. Symptoms suggesting hypoglycemia were present in all 3 and the minimum fasting blood sugar determinations were considerably below 50 mg. per hundred cubic centimeters. Solitary tumors of pancreatic islet cells were excised from the region of the tail of the pancreas in 2 of the patients. In 1 of these the tumor was almost completely extrapancreatic. Its gross appearance was similar to that of an accessory spleen or hemolymph node.

and although it was adjacent to the inferior aspect of the pancreas its attachment to this organ was apparent only on microscopic examination of the specimen. The third patient was known to have had diabetes mellitus for seven years. Episodes of hypoglycemia appeared and became progressively more frequent and severe over a period of a few weeks. At operation no evidence of tumor or aberrant pancreatic tissue could be found. A partial resection of the pancreas was performed. The condition of diabetes mellitus recurred following the operation, and subsequently the patient has remained diabetic. Pathologic examination of the part of the pancreas excised showed alterations in the staining of the tissue, suggesting the presence of islets of Langerhans that were increased in number and size. Hyperinsulinism may be caused by tumors containing actively secreting islet cells or by the hypersecretion of insulin in a pancreas in which the islets of Langerhans may appear to be either normal or increased in size and number. Aberrant pancreatic tissue also is a possible source. Rarely, hyperinsulinism has appeared in patients who previously had diabetes mellitus. The clinical manifestations of hyperinsulinism do not appear in all patients with tumors of the islet cells. Such tumors may be found at necropsy or during laparotomy for other abdominal conditions. It is supposed that insulin is elaborated by the beta cells of the islets of Langerhans and that tumors of the islet cells giving clinical manifestations of hyperinsulinism contain appreciable numbers of these cells. The dietary management of patients with hypoglycemia consists of low carbohydrate, high protein, high fat food given at frequent intervals (six meals a day).

Swelling of Arm Following Radical Mastectomy.—Having seen a patient who developed swelling of the arm two and one-half years after radical mastectomy, Holman and his associates tried to determine the cause of such swelling. They examined 100 patients who had been subjected to radical mastectomy between six months and eleven years previously. They were not consecutive cases but were selected because they were available for follow-up examination. The arms of these patients were measured, the presence or absence of swelling noted and data collected relating the swelling to grafting, infection, recurrence and roentgenotherapy. The authors found that primary skin grafting has no influence on the occurrence of swelling of the arm following radical mastectomy. Swelling of the arm cannot be assumed to signify recurrence of carcinoma. The presence or absence of metastases to the axillary nodes at the time of operation has no bearing on the swelling. In this series of cases by far the greatest factors in the cause of swelling of the arm were infection and x-ray dermatitis.

Virginia Medical Monthly, Richmond

71:225-278 (May) 1944

- Correction of Multiple Deformities of Nose. W. L. Gatewood.—p. 227.
Acute Surgical Conditions Complicating Malignancy. J. L. Rawls.—p. 232.
Recent Advances in Pharmacology of Nicotine. H. B. Haag and P. S. Larson.—p. 235.
Toxicity of Trimethylololene. A. McCausland and R. F. Hawkins.—p. 252.
Reports and Observation on Some 300 Cases of Whooping Cough. W. B. McIlwaine and Leta J. White.—p. 249.
Study of Value of Pertussis Vaccine. L. F. Galvin and F. J. Wampler.—p. 251.
Outbreak of Food Poisoning Due to *Staphylococcus Aureus*. G. McL. Lawson and T. S. Englar.—p. 253.
Longevity of Fungi on Carriers. F. W. Shaw and F. J. von Gutfield.—p. 256.
Army Specialized Training Unit at Medical College of Virginia. J. M. Dixon.—p. 258.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

52:197-244 (May) 1944

- Ergonovine-like Oxytocic Synthesized from Lysergic Acid. A. C. Kirchhof, C. A. Racely, W. M. Wilson and N. A. David.—p. 197.
Surgical Treatment of Congenital Hypertrophic Pyloric Stenosis. J. A. Gius.—p. 209.
Clinical Use of Sulfonamides. S. Mayer Jr.—p. 213.
Spinal Anesthetic Agents and Methods Usually Employed at University of Oregon Medical School Hospitals. J. H. Hutton.—p. 218.
Diabetes Mellitus: Collective Review, 1941 to 1943. L. J. Palmer.—p. 222.
Recent Advances in Treatment of Arthritis. Dorothy Gull.—p. 230.
Vagaries and Historical Backgrounds in Obstetrics: Part II. G. C. Schaulier.—p. 234.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Lancet, London

1:523-554 (April 22) 1944

- Analysis of Battle Casualties Admitted to Middle East Hospitals, April 1, 1942 to March 31, 1943. P. Wiles.—p. 523.
Base Hospital in 1918. H. J. Nightingale.—p. 525.
Amblyopia Due to A Vitamin Deficiency. P. B. Wilkinson.—p. 528.
*Kala Azar Treated with 4:4' Diamidinostilbene. R. B. U. Somers.—p. 531.
*Malaria as Nonrelapsing Disease: Review of 1,619 Cases in Northern Rhodesia. L. M. Rodger.—p. 533.
Nitrous Oxide Economiser: Simple Attachment for Boyle's Machine. J. Ives.—p. 534.
Ulcerative Colitis: Clinical Experiments with Pig's Intestine. A. M. Gill.—p. 536.

Kala Azar Treated with 4:4' Diamidinostilbene.—Somers says that until the introduction of 4:4' diamidinostilbene in 1939 treatment of kala-azar in the Anglo-Egyptian Sudan had been most disheartening. The drugs in general use at the time were antimony tartrate, "neostibosan" and urea stibamine. During the last eight years the author has treated 26 patients with kala-azar in the Sudan; the first 21 were treated with either antimony tartrate or neostibosan. They died in the hospital or ran away before completing their treatment; none showed permanent improvement. The last 5 patients were treated with the urea derivative 4:4' diamidinostilbene and responded favorably; 4 of them were alive and well when seen between eight and nine months after their apparent cure; only four months had elapsed since the fifth patient completed treatment when he was last seen. The drug was given at intervals of one to three days in doses gradually increased from 1 mg. to 4 mg. per kilogram of body weight. The total amount varied from 3.01 Gm. to 4.88 Gm.

Malaria as a Nonrelapsing Disease.—Rodger presents a survey which he undertook to test his belief that malaria is an easily curable disease and that its reputation for relapsing is often the result of reinfection. He made his observation in a copper mine of northern Rhodesia on a European population of 2,500, which, though living in a hyperendemic area where the parasite and spleen indexes are between 50 and 60 per cent in native children, is yet so well protected by antilarval and anti-mosquito measures that the average expectation of an attack is once in every seven or eight years. European employees, over 1,000 in number, are not permitted a day's stay off work without a medical certificate, nor can they return to work without a further certificate. No quinine is issued to employees except in the course of treatment. Blood smears are taken from every febrile patient, and no patient is treated for malaria until parasites are found in the blood. Every patient is treated in a hospital, and no one is allowed to rely on the casual and haphazard administration of quinine or atabrine. The present series covers five years. There were in all 1,619 cases of malaria in Europeans. These represented attacks in 1,157 persons, 842 of whom had only one attack. Thus 72.7 per cent of infected persons did not suffer a second attack in five years. Of the remaining 27.3 per cent a large proportion are probable reinfections and not relapses. Atabrine is given when there is a history of blackwater fever, quinine idiosyncrasy or previous irregular quinine administration over long periods. Plasmodium ovale infections require a course of quinoplasmoquine and some quartan cases also require some such combination.

Medical Journal of Australia, Sydney

1:286-308 (April 1) 1944

- Experimental Diabetes. A. B. Corkill, P. Fantl and J. F. Nelson.—p. 285.
*Periarticular Fibrositis of Knee and Value of Local Analgesia. M. Kelly.—p. 286.
Hookworm Infestation. T. E. Lowe and H. O. Lancaster.—p. 289.
Further Observations on Direct Blood Transfusion. J. S. Guest and K. C. Bradley.—p. 292.

Local Analgesia in Periarticular Fibrositis of Knee.—Kelly maintains that pain in the region of the knee joint, when not due to mechanical derangements or to well defined disease such as tuberculosis or rheumatoid arthritis, will frequently be found associated with fibrositic lesions of adjacent muscles. Periarticular fibrositis can be differentiated from arthritis

because of the absence of redness, widespread tenderness and muscular atrophy, and there is little evidence of fluid in the joint. There is a well defined area of tenderness in muscle, and referred tenderness may be found over a greater or lesser area of the joint surface. The pain may or may not be accompanied by swelling; the range of movement usually is limited, though the degree varies. The pain may be worse on weight bearing, or the patient may complain bitterly of aching at night. The lesion may follow an injury, or it may appear spontaneously. The pain is felt more commonly on the inner side of the joint, and tenderness will be detected more frequently on the medial side. Injection of a local anesthetic into the joint capsule may counteract pain and restore mobility, but the relief is not lasting. Adjacent muscles should be searched for tender spots, and when these are anesthetized the tenderness of the capsule disappears and the relief is often permanent. In the great majority of instances the author has found muscular lesions on the inner side posteriorly. A number have been found in the inner fibers of the calf muscles behind the tibial condyle; but by far the commonest site is in relation to the inner condyle of the femur, at what the author terms the "adductor tubercle spot." Points of tenderness may be found along the upper border of the condyle, or a lesion may be found a little farther back in the fibers of the semimembranosus muscle. On deep infiltration of the lesions the tenderness of the whole internal aspect of the knee will disappear, together with other symptoms, such as pain on weight bearing and limitation of flexion. In many cases articular or periarticular swelling accompanied the other signs; if the treatment was successful in allaying the pain, the swelling subsided in the course of a few days. Manifestations of arthritis in some cases are brought about by a nervous reflex.

Practitioner, London

152:281-344 (May) 1944

- Sulfonamides in Dermatology. H. W. Barber.—p. 281.
Scabies. H. MacCormac.—p. 291.
Causes and Treatment of Acute Dermatitis. J. F. Smith.—p. 297.
Acne Vulgaris. J. T. Ingram.—p. 304.
Skin Disorders in Newborn Infant. J. L. Henderson.—p. 310.
Therapeutic Use of Penicillin. L. P. Garrod.—p. 318.
Hereditary Blood Groups. R. M. Walker.—p. 324.
Treatment of Infections of Hand: Necessity for New Approach. D. Patey.—p. 329.

Praxis, Bern

32:791-810 (Nov. 11) 1943

- Sulfonamide Nasal Ointment in Treatment of Head Colds. D. Schindler-de Wasilewska and A. Schnieper.—p. 791.
*Action of Chlorophyll on Healing of Wounds. Marie Louise Boehringer.—p. 793.

Action of Chlorophyll on Healing of Wounds.—Boehringer compared the healing effect of chlorophyll ointments of different concentrations with other ointments and an ointment base. Her experiments were made on rabbits. She found that chlorophyll ointment promotes the healing of wounds. The wounds dried more quickly, the granulations were stronger and healthier, epithelization was more rapid and the wounds shrank in size much better than when the other ointments were used. Whereas the control wounds nearly always showed inflammatory changes and were extremely sensitive to pressure, this occurred only exceptionally in the wounds treated with chlorophyll. The scars resulting after treatment with chlorophyll were easily movable on the base, whereas in the wounds treated with the other ointments adhesions with the underlying fascia were frequent. The ideal concentration of the chlorophyll ointment has not been ascertained. Concentrations of 0.01 and of 0.5 per cent effect a noticeable acceleration in wound healing.

Schweizerische medizinische Wochenschrift, Basel

73:841-864 (July 3) 1943. Partial Index

- *Involvement of Internal Ear Due to Epidemic Parotitis: Case. A. Rodel.—p. 841.
Clinic and Therapy of B Hypovitaminosis. A. Kappert.—p. 844.
Pharmacologic Study of Sulfur. P. Darbellay.—p. 848.
Inauguration of New Teaching Method by the Faculty of Medicine at the University in Geneva. R. de Seigneux.—p. 855.

Involvement of the Inner Ear in Epidemic Parotitis.—Rodel advocates functional tests of hearing for all cases of bilateral swelling of the parotid and particularly for those of

uncertain origin. The importance of this was well demonstrated in the case of a woman aged 48 who had had measles, scarlet fever, diphtheria, whooping cough and dysentery, but not mumps. A septicopyemic condition spreading from the parotid and a posterior pharyngeal abscess were the predominant features on her admission at the laryngologic clinic. Diagnosis of unilateral epidemic parotitis with mixed infection and secondary perforation of the parotid abscess into the external acoustic canal and into the posterior pharyngeal cavity was made. A sudden onset of neuralgic pain in the area of the facial nerve and of all three branches of the fifth nerve within twenty-four hours prior to the swelling of the parotid was considered as a premonitory sign of toxic-infective lesions of those cerebral nerves. The septicopyemic condition subsided after the removal of the posterior pharyngeal abscess by tonsillectomy, whereas the external incision of the parotid abscess had failed to control the infection. The involvement of the inner ear, demonstrated by the functional hearing tests, represented a meningeal complication of epidemic parotitis. Loss of hearing on the right side continued for some time. Paresis of the facial nerve occurred on the sixteenth day of the disease and continued for weeks without improvement. The destructive character of the suppurative inflammation of the parotid was considered responsible. Increase in the pressure of the cerebrospinal fluid (500 mm.) suggested primary irritation of the meninges. The functional hearing tests and the lumbar puncture clarified the diagnosis.

Bol. del Instituto de Maternidad, Buenos Aires

12:1-346 (Dec.) 1943. Partial Index

- *Sulfonamide Therapy in Prevention of Infection in Cesarean Section in Contaminated Cases. A. Peralta Ramos.—p. 21.
*Obstetric Shock. R. Caso and J. J. Báez.—p. 160.
Endometriosis. A. Peralta Ramos and H. Mónaco.—p. 296.

Sulfonamide Therapy in Cesarean Section.—Peralta Ramos reports the results of cesarean sections on two groups of parturients, 429 and 69 patients respectively. The patients in both groups belonged to three grades of contamination, second, third and fourth degrees. Sulfanilamide or sulfapyridine powder 4 or 5 Gm. was applied to the peritoneum in the second group of patients. Mortality amounted to 3.49 per cent in the group not given sulfonamide and to 1.45 per cent in the treated group. The only patient who died in the sulfonamide group was a patient classified as representing the third degree of contamination. The patient died from generalized peritonitis. The effect of local application of the drug after cesarean section in infected cases is less favorable than that in other surgical interventions. The less favorable effect is due to the functional lability of the hepatic and renal systems in pregnancy and to the difficulties in identifying the causal bacteria of the infection. Local application of sulfanilamide, reinforced in certain cases by oral administration of the drug, is of value after cesarean section in contaminated cases. Hysterectomy is indicated only in very grave cases of acute uterine infection.

Obstetric Shock.—Caso and Báez report 5 cases of obstetric shock. They believe that obstetric shock is vasogenic. The most frequent form is that which follows acute hemorrhage. Adrenal dysfunction and imbalance of the sympathetic nervous system are the main causal factors. Preventive therapy consists in proper antepartum care and of administration of adrenal cortex extract if there are symptoms of adrenal insufficiency. The therapy of shock is one of emergency. It consists in plasma or blood transfusion and the treatment of the associated gynecologic and general disorders. Plasma is indicated in post-hemorrhagic shock, provided the amount of hemoglobin is not greatly diminished. Blood of the O group is used in blood transfusion when the latter follows administration of plasma. Heart tonics are interdicted. Vasoconstrictive drugs are unnecessary after plasma or blood transfusion because of the spontaneous peripheral vasoconstriction which follows either plasma or blood transfusion. Morphine is contraindicated if there is cyanosis.

Book Notices

Minor Surgery. By Frederick Christopher, S.B., M.D., F.A.C.S., Associate Professor of Surgery at Northwestern University Medical School, Chicago. Fifth edition. Cloth. Price, \$10. Pp. 1,006, with 375 illustrations. Philadelphia & London: W. B. Saunders Company, 1944.

This is a splendid book on minor surgery containing an enormous amount of information. It has an extensive bibliography, which is well chosen and up to date. The author quotes freely from medical literature but now and then presents perhaps too many ideas on a given point. The discussion on varicose veins might be considered an example of too many views without specific recommendations of any one as being preferable. In general, the reviewer agrees entirely with the author in presenting more than one view when the subject is controversial and sound arguments and good minds are on both sides. Most of the illustrations are borrowed but well chosen. Even the best books have a few weak spots. On page 4 the author has included a brief discussion on the local application of chemical agents to contusions. Although no claims are made for these, it would appear just as well to eliminate them entirely. Important subjects such as burns and wounds have been covered splendidly and in proper detail. Chapter XXIII, dealing with the technic of numerous methods of hospital care, including fluid administration and transfusion, should be particularly valuable to the intern. This material has been made up to date, even including a short discussion on the Rh factor in blood grouping and blood transfusions. The reviewer agrees that the limitation of the discussion on bandaging to five or six pages is appropriate. Chapter XXIV, dealing with preoperative and postoperative care, is likewise particularly valuable to the surgical intern but could be read profitably by any surgeon. The last chapter, which has been directed primarily to the intern, includes discussion on the conduct and responsibilities, which are seldom considered in medical literature. This book continues to be one of the best in the field and can be read profitably by any one in the medical profession.

The Adrenal Glands in Health and Disease. By Max A. Goldzieher, M.D., Endocrinologist, St. Clare's Hospital, New York City. Fabrikoid. Price, \$8. Pp. 727, with 81 illustrations. Philadelphia: F. A. Davis Company, 1944.

This volume, written by a man who has devoted most of his professional lifetime to a study of the adrenal glands, is of real value to any student in clinical endocrinology or clinical pathology. There has been an interval of eight years since a comprehensive treatise on the adrenals by Grollman was published. During that time much new investigative work and clinical experience in the management of Addison's disease has appeared. In the current volume the author has presented a careful documentation of the entire field and has studied the adrenal cortex and medullas from the points of view of embryology, anatomy, physiology, biochemistry and clinical management of disorders of the glands. His own points of view are presented with modesty and without failing to point out differences of opinion and the points of view which are held by numerous other modern students in this field. In the sixty chapters of this book one will find discussion of correlation between the adrenals and almost any aspect of physiology or of clinical medicine which can be considered significant in any way. References to the literature are given chapter by chapter, with definite reference to the authority for all questionable statements. A twenty-three page index adds greatly to the usefulness of the book. The paper, the typography and the reproductions of the illustrations are excellent. The author is to be congratulated on an enormous task well done.

Six Thousand Years of Bread: Its Holy and Unholy History. By H. E. Jacob. Cloth. Price, \$4.50. Pp. 399, with 68 illustrations. Garden City, New York: Doubleday, Doran and Company, Inc., 1944.

Man must eat to live. In his desire to survive, the word "bread" has become synonymous with survival. This book gives the story of bread in its religious, political and technical aspects over a period of six thousand years. The author consulted a vast bibliography. His record of six thousand years ends with

a recognition of the necessity for feeding a starving world in the postwar period if mankind is to survive. No better quotation could be selected to indicate the significance of this work than that from ex-President Hoover, who said in May 1943 "The first word in a war is spoken by the guns—but the last word has always been spoken by bread."

The Brush Foundation Study of Child Growth and Development. I: Psychometric Tests. By Elizabeth Ebert & Katherine Simmons. Monographs of the Society for Research in Child Development, Volume VIII, No. 2 (Serial No. 35). Paper. Price, \$1.50. Pp. 113, with 19 illustrations. Washington, D. C.: Society for Research in Child Development, National Research Council, 1943.

This is the first of a series of reports of a study of growth and development of children, originally organized and directed by T. Wingate Todd. Periodic examinations, including psychometric tests, anthropometric determinants and roentgenograms, have been made. A selected group of presumably "normal" (probably, as a group, "superior") children were examined between the ages of 3 months and 15 years. The report covers ages 2 to 15 years. Constancy of intelligence tests, constancy and relation of performance tests to tests of intelligence, the prediction of scholastic achievement by earlier psychometric tests, and sibling resemblances are reported. To select items of clinical interest, it is reported, "there are children whose mental test standard scores show decided decelerating trends and accelerating trends which apparently are independent of test standardization and peculiar to the individuals." Further, a superior intelligence quotient does not offer assurance that educational achievement will be at a correspondingly high level. These observations point toward problems of psychiatric import not otherwise dealt with in the study. This important study, in the form published, is of interest to the research worker in child development; one will await with interest clinical elaboration in connection with the later studies of the series.

The Jews and Medicine: Essays. By Harry Friedenwald, M.D., D.H.L., D.Sc. Volumes I and II. Publications of the Institute of the History of Medicine, The Johns Hopkins University, First Series, Monographs, Volumes II and III. Cloth. Price, \$3.75 per volume. Pp. 390; 391-817, with 40 illustrations. Baltimore: Johns Hopkins Press, 1944.

These two volumes represent the collected essays of a distinguished medical historian and scholar. Many of the essays have previously appeared in the *Bulletin of the History of Medicine* from the Johns Hopkins Institute of Medical History and others in a wide variety of medical publications, such as the *Annals of Medical History*, the *Medical Pickwick*, *Medical Life* and *Medical Leaves*. For those especially interested in the field concerned, it is delightful to have these collected essays readily available. Particularly valuable is the list of eminent Jewish physicians of the Middle Ages, with brief biographic notes and bibliography.

Ventilation and Heating: Lighting and Sealing. Conditions for Industrial Health and Efficiency Pamphlet No. 1. Issued by the Industrial Health Research Board of the Medical Research Council. Paper. Price, 3d. Pp. 20, with 11 illustrations. London: His Majesty's Stationery Office, 1943.

This pamphlet outlines the main facts known about ventilation, heating, lighting and sealing that should be applied to industrial establishments. It is written in a nontechnical manner for the industrial manager or worker to aid primarily in the problems arising from complete blackout of plants in England. The presentation describes practical procedures that may be used in any installation.

The Use of Penicillin in Treating War Wounds. (Instructions Prepared by the Penicillin Clinical Trials Committee). Medical Research Council, War Memorandum No. 12. Paper. Price, 10 cents; 3d. Pp. 16. New York: British Information Services; London: His Majesty's Stationery Office, 1944.

This pamphlet was prepared by the Penicillin Clinical Trials Committee of England for the purpose of providing instructions for the use of penicillin in war wounds. It contains an adequate outline of the methods of administration and preparation of penicillin for clinical use, and specific instructions are given for its application in various types of wounds. The content is sound and accurate. Every one interested in penicillin will profit from reading this booklet.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PRESENT MORTALITY RATES OVER AND UNDER AGE OF FIFTY

To the Editor:—Recently I saw a statement that the mortality rate of persons over 50 years of age had increased 10 per cent since the declaration of war and that even with the casualties in the battle zones or with all war casualties the mortality rate of the younger people, or those under 50, has remained approximately the same. Are there definite statistics concerning this?

D. D. Sanderson, M.D., Lincoln, Neb.

ANSWER.—According to the provisional mortality figures of the United States Bureau of the Census based on a 10 per cent sample of death certificates, there has been an increase of a little over 4 per cent in the death rate for the population 50 years and over in 1943 as compared with the corresponding rate for 1941. The mortality rate for the age group under 50 years showed a slight decrease in 1943 from the corresponding rate in 1941. These comparisons do not include deaths among military personnel occurring outside the continental United States. Although exact data on war casualties are not available, the relative increase in the death rate for the population under 50 years of age would probably not be greater than the 4 per cent increase observed for the age group 50 years and over if deaths among American soldiers abroad are taken into consideration.

AUTONOMOUS BLADDER AFTER SECTION OF NERVE ROOTS

To the Editor:—An exploratory operation on the sacral canal to determine the cause for intractable sciatic pain was performed about ten months ago on a woman aged 62. The only condition of a pathologic nature found was a chronic inflammation of the nerve roots. The second and third sacral roots on the left and the second sacral root on the right were severed. Following the operation, urinary incontinence developed. For the past two months the incontinence has ceased while the patient is in bed. However, on assuming the erect posture, there is an almost immediate flow of urine. The bladder does not seem to be completely paralyzed, since the patient can voluntarily express urine. A cystocele is present; residual urine analysis, which at first showed innumerable white cells, has been normal for the past three weeks. Catheterization, which was practiced frequently some months ago, has been discontinued. May I have an opinion concerning the prognosis and treatment?

M.D., New York.

ANSWER.—The results of the exploratory operation are similar to those which follow complete section of both pelvic nerves. The result is similar to that found in a lesion of the conus medullaris, or reflex center of the sacral cord. The present condition may be described as an autonomous bladder. It is difficult to make an accurate diagnosis from the data given without determining the amount of residual urine remaining in the bladder after the patient has strained to void all that is possible. It would be advisable to empty the bladder with a catheter and later determine how long the patient can hold the urine before the so-called incontinence appears. The incontinence might be an overflow incontinence. It is also suggested that cystoscopy be made to determine whether or not the bladder is hypertonic and trabeculated, as it should be with an autonomous bladder. It seems hardly probable that the cystocele is a factor in the patient's condition.

If such a condition is present, about the only thing that could be done would be to train the patient to void at intervals, using abdominal straining and manual compression of the bladder. In this way the amount of urine in the bladder could be kept below the level at which the so-called incontinence occurs. Should secondary infection be present, sulfonamide medication at intervals may be indicated.

BURNS AND RHEUMATOID ARTHRITIS

To the Editor:—In a case of infective arthritis following severe burns a claim has been filed. I would appreciate any reference in the literature to sequelae of this nature following burns.

D. J. Fraser, M.D., Winnipeg, Man.

ANSWER.—A severe burn might operate in two ways to induce arthritis: (1) by virtue of the excessive demands made on the central defense mechanism of the body and (2) by virtue of the secondary infection which develops on the burned surfaces. In rheumatoid or atrophic arthritis, infection may act as a precipitating factor and the modern view is that the arthritic

phenomena probably represent a psychosomatic reaction, presumably through the mediation of the neuroendocrine system. In the present war cases of rheumatoid disability are developing on the apparent basis of the strain and tension involved in army service. In the last war, exposure and such conditions as dysentery induced rheumatoid arthritis, which sometimes developed only after considerable delay. It is worthy of note also that in the last war patients who developed arthritis gave a history of previous attacks with a frequency five times greater than was observed in cases admitted to the medical service at large. A severe burn can therefore be regarded as a precipitating factor, acting on soil presumably somewhat susceptible to rheumatic disease to produce the full picture of rheumatoid arthritis.

IMMEDIATE TREATMENT OF CARBON TETRACHLORIDE INGESTION

To the Editor:—A woman aged 40 drank a large amount of carbon tetrachloride fluid. She was immediately given gastric drainage and lavage, and this was followed by saline cathartics. Our question is, as this substance is highly soluble in oils, could liquid petrolatum be given to the patient? My associates feel that the oil is so poorly absorbed that it would be evacuated before significant absorption has occurred. However, I believe that there is considerable absorption as evidenced by the oil in the lymph glands of the mesentery as seen on autopsy, especially in those who have had considerable quantities at one time or for some period of time.

David E. MacQuigg, M.D., Albany, N. Y.

ANSWER.—Liquid petrolatum is effective in decreasing gastric absorption of carbon tetrachloride only if it is administered promptly. If any considerable time elapses between the swallowing of carbon tetrachloride and the administration of liquid petrolatum, little antidotal effect can be expected. In any event it is important to wash out the stomach thoroughly, employing oils such as liquid petrolatum or vegetable oils (olive oil, cottonseed oil, salad oil) and to follow gastric lavage with a saline cathartic. The administration of liquid petrolatum only shows absorption of carbon tetrachloride, and any of the poison which has passed the pylorus will unquestionably be absorbed in spite of the use of oily antidotes.

CONCEPTION AFTER ECTOPIC PREGNANCY

To the Editor:—What successes or failures in becoming pregnant have been achieved following ectopic pregnancy which has necessitated removal of one ovary and tube? What are the percentages of recurrences of ectopic pregnancy?

M.D., New York.

ANSWER.—Statistics from various clinics indicate that among women who have had one tube and ovary removed because of ectopic gestation (that is, in whom there is a theoretical possibility of future conception), about 35 per cent subsequently become pregnant. Of those who do have a subsequent pregnancy, 10 to 15 per cent have another ectopic pregnancy. Stated differently, among 100 women who have had one tube and ovary removed because of ectopic gestation, about 65 women would not conceive at all, about 30 would become pregnant with normal intrauterine gestations, while 4 or 5 would experience another ectopic pregnancy.

CHRONIC UNDULANT FEVER

To the Editor:—Has penicillin been used successfully in the treatment of undulant fever? What seems to be the most satisfactory treatment for this disease? The patient is ambulant, has an afternoon fever and complains of lassitude and weakness; she has been in this stage for about two years but has been slightly worse lately.

Leonard Nelken, M.D., Clinton, Iowa.

ANSWER.—Penicillin has had no effect on the course of undulant fever. There is no really satisfactory treatment for this disease. Occasionally, sulfadiazine has been found beneficial. An effort should be made to discover a chronic focus of infection, particularly in the biliary tract, which would be amenable to surgical treatment. Some consideration should be given to the possibility that the patient's symptoms are caused by some other disease.

THERAPY FOR COLD HANDS AND FEET

To the Editor:—In the June 3, 1944 issue of *The Journal* there was on page 390 an inquiry about cold hands and feet in a girl aged 19. I agree with the answer as far as the neurologic differential diagnosis is stressed. The cervical rib, Raynaud's syndrome and thromboangiitis obliterans should always be excluded. Assuming that the results are negative, however, I would not begin by considering cervical sympathectomy. One should begin with one of the following: relaxation therapy as described by Edmund Jacobson, 1938, University of Chicago Press, wake suggestion or hypnosis. The first two may be used as a preliminary for the third, if necessary. The results are encouraging and lasting, and they can be reached without even taking the patient to a warmer climate. The same, incidentally, holds for cold feet and neurotic red ears and hot head in younger persons.

Wladimir Eliasberg, M.D., New York.

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AUGUST 26, 1944

ENDEMIC EXUDATIVE PHARYNGITIS AND TONSILLITIS

ETIOLOGY AND CLINICAL CHARACTERISTICS

COMMISSION ON ACUTE RESPIRATORY DISEASES

During the course of studies at the Regional Hospital at Fort Bragg, it was noted that approximately 10 per cent of all patients admitted for respiratory disease had exudate in the pharynx or on the tonsillar tissue. Some of these patients exhibited both clinical and bacteriologic evidence of beta-hemolytic streptococcus pharyngitis; some had beta-hemolytic streptococci in their throats but the clinical picture was not characteristic, and others had neither clinical nor laboratory evidence of beta-hemolytic streptococcus infection. These findings were at variance with commonly held beliefs that the beta-hemolytic streptococcus is the commonest cause of exudative pharyngitis and tonsillitis and that a characteristic clinical picture is associated with the presence of exudate in the throat.¹ It therefore seemed of importance to undertake a systematic clinical and laboratory study of the problem. Since beta-hemolytic streptococci may be harbored in the throats of healthy persons as well as in those suffering from colds and other types of respiratory illness, the diagnosis of streptococcal pharyngitis rests secure only when a specific antibody response to the organism can be demonstrated during convalescence.

One hundred and sixteen cases of exudative tonsillitis and pharyngitis were studied. In 25 per cent of the cases, beta-hemolytic streptococci were found

and a rise in streptococcus antibodies was demonstrated in the serums in convalescence. In these cases beta-hemolytic streptococci clearly contributed to, or were responsible for, the clinical condition. In another 25 per cent of cases beta-hemolytic streptococci were found but a rise in antibodies did not occur. In most of these cases there was considerable doubt as to the etiologic significance of the organism. In slightly more than 50 per cent of all cases streptococci were not found on repeated cultures, and in these cases there was little evidence that bacteria were etiologic agents.

Well defined clinical differences were demonstrated between those patients who harbored streptococci and developed antibodies and the other two groups of patients. The latter two groups were, in general, similar to each other in clinical characteristics.

MATERIALS AND METHODS

Source of Cases.—The study was confined to patients who were admitted from selected organizations to the Regional Hospital at Fort Bragg during a ten week period from April to June 1943. The criterion employed for deciding when a soldier required hospitalization was, in general, a temperature of 100 F. (oral) or higher at the time of reporting to the dispensary. Altogether, 900 soldiers from the selected organizations were admitted to the hospital for respiratory symptoms during the period of the study.

The patients were examined within a few hours after admission, and all who had exudate in their throats at that time were included in the study. The presence of exudate at the time of initial examination was the sole criterion for the selection of cases.

Clinical Methods.—The history and physical findings were elicited and recorded in a uniform manner. An attempt was made to date the onset of the illness accurately, to elicit the symptoms and physical signs every day, and to grade their severity.

Codeine was given for symptomatic relief in doses not exceeding one-half grain (0.032 Gm.), but antipyretic drugs were not used. Sulfonamide drugs were administered to a few patients according to clinical indications. Blood samples were obtained on all patients at the time of initial examination and again at approximately four weeks after the onset of illness. Total and differential leukocyte counts were made routinely soon after admission to the hospital, and subsequently as often as indicated.

Bacteriologic and Serologic Procedures.—Swab cultures of the throat were made daily for three successive days, beginning at the time of the first examination of the patient. An effort was made to include in the swabbing the surface of both tonsils or tonsillar fossae, the posterior pharynx and especially surfaces containing exudate. Cultures of the nose and nasopharynx were not taken.

From the Respiratory Diseases Commission Laboratory, Regional Hospital, Section 2, Fort Bragg, North Carolina.

The Commission was assisted by the technical staff of the laboratory, consisting of Marguerite Buckingham, Walter A. Mickle Jr., 2d Lieutenant, Sn. C., Barbara A. Mulliken, Thomas J. Oliver, 1st Lieutenant, Sn. C., Ralph L. Robinson, 1st Lieutenant, Sn. C., and Edith E. Searles.

Members of the Commission on Acute Respiratory Diseases are J. H. Dingle, Major, M. C., A. U. S., Director; T. J. Abernethy, Major, M. C., A. U. S.; G. F. Badger, Captain, M. C., A. U. S.; J. W. Beard, M.D.; N. L. Cressy, Major, M. C., A. U. S.; A. E. Feller, M.D.; A. D. Langmuir, Captain, M. C., A. U. S.; C. H. Rammelkamp, M.D., and E. Strauss, Captain, M. C., A. U. S.

This investigation was supported through the Commission on Acute Respiratory Diseases, Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, Preventive Medicine Service, Office of the Surgeon General, United States Army, and by grants from the Commonwealth Fund, the W. K. Kellogg Foundation, the John and Mary R. Markle Foundation and the International Health Division of the Rockefeller Foundation to the Board for the Investigation and Control of Influenza and Other Epidemic Diseases for the Commission on Acute Respiratory Diseases.

The following officers and their staffs at Fort Bragg assisted the Commission on Acute Respiratory Diseases and made this study possible: Major Gen. D. C. Cubbison, commanding general, Field Artillery Replacement Training Center; Brig. Gen. H. C. Coburn Jr., M. C., surgeon, Fort Bragg; Col. G. D. Chunn, M. C., commanding officer, Regional Hospital; Lieut. Col. W. B. Daniels, M. C., chief of medical services; Lieut. Col. H. O. Brown, M. C., chief of x-ray services; Lieut. Col. F. J. Pohn, M. C., chief of laboratory services; Major R. L. Siegel, M. C., surgeon, Field Artillery Replacement Training Center; Capt. A. H. Green Jr., M. C., admitting officer, Regional Hospital; Capt. H. E. McConnell, assistant admitting officer, Regional Hospital, and the following ward surgeons: Major T. T. Jones, M. C., Capt. R. D. Patterson, M. C., Capt. W. S. Branning, M. C., Capt. C. L. Royster, M. C., and 1st Lieut. L. Chunn, M. C.

1. Felty, A. R., and Hodges, A. B.: Bull. Johns Hopkins Hosp. 34: 330, 1923. Bloomfield and Felty.¹²

Throat swabs were placed immediately in 3 cc. of broth or isotonic solution of three chlorides and returned to the laboratory, where the swabs were rotated mechanically or by hand in order to obtain mixing of the contents. A loopful of this material was then streaked by a uniform technic on the surface of a freshly made meat infusion agar plate containing 5 per cent horse blood. After twenty-four hours' incubation at 37 C., the plates were examined for beta-hemolytic streptococci and other organisms; the relative numbers of each kind of organism were estimated and a note made as to which organism, if any, was predominant. An organism was considered predominant if it constituted more than 50 per cent of all the colonies (of any kind) on the plate.

Grouping of beta-hemolytic streptococci was performed by the capillary tube precipitin technic, using commercial rabbit serums and bacterial extracts prepared by Fuller's method.² Typing was done by the capillary tube modification of the Lancefield method, using bacterial extracts prepared by Lancefield's method.³ Type specific rabbit serums⁴ as well as capil-

single throat culture yielded only reasonably complete information and that the frequency of positive cultures was increased by repeated swabbing.

Distribution of Beta-Hemolytic Streptococci by Groups and Types.—The beta-hemolytic streptococci isolated from 47 of the 56 cases were found to belong

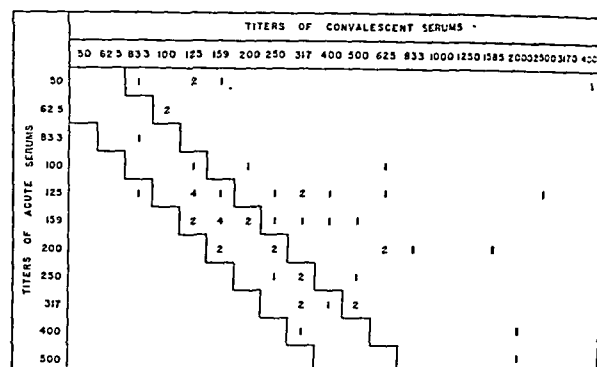


Chart 1.—Antistreptolysin titers of acute and convalescent serums in 55 cases of exudative tonsillitis and/or pharyngitis in which beta-hemolytic streptococci were isolated. In 1 other patient who had streptococci in the throat, convalescent serum was not obtained. Titers are expressed as units of antistreptolysin per cubic millimeter of serum. Figures refer to number of cases. Area within diagonal lines represents changes between acute and convalescent serums considered not significant, i. e. less than two tube change in titer. Figures to right of diagonal area represent significant increases in titer in convalescent serums; figure to left, significant decrease in titer.

TABLE 1.—Distribution of Beta-Hemolytic Streptococci in Three Successive Daily Throat Cultures in 116 Cases of Exudative Tonsillitis and/or Pharyngitis According to the Presence or Absence of Streptococcus Antibodies

Culture Number *	Antibody		No Antibody		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
A B C.....	19	68	14	50	33	59
A B.....	3	11	..	..	3	5
B C.....	2	7	2	7	4	7
A O.....	2	..	2	7	4	7
A.....	..	..	3	11	3	5
B.....	..	..	2	7	2	4
C.....	2	7	5	18	7	12
Total.....	28	100	28	100	56	100

* A, B and C indicate first, second and third cultures respectively.

lary tubes and serum containers were supplied through the generosity of Drs. Homer T. Swift and Rebecca C. Lancefield.

The streptolysin O used in this study was prepared and kindly supplied by Dr. T. Duckett Jones. The test was a modification of the method of Hodge and Swift.⁵ The titers of acute and convalescent serums were determined simultaneously, and all tests were performed with the same lot of streptolysin. The titers were expressed as the reciprocals of the highest serum dilutions which neutralized completely 1 unit of streptolysin.

RESULTS

The 116 cases of exudative pharyngitis and tonsillitis could be classified into three groups on the basis of laboratory findings. When such a division was made, definite clinical differences among the groups were demonstrated.

Beta-hemolytic streptococci were found in one or more of three throat cultures in 56 (48 per cent) of the cases in this series (table 1). Of these 56 cases 76 per cent were positive in the first culture, 88 per cent in the first or second culture and 12 per cent only in the third culture. This would indicate that a

to group A. In 1 case the streptococci were members of group B, in 2 cases group C and in 1 case group H. In 5 cases the organisms isolated were not grouped.

Typing was accomplished successfully in 38 of the 47 cases with group A strains; 9 had strains which were not typed with the serums available. The type distribution was as follows: type 3, 6 cases; type 5, 4 cases; type 19, 9 cases; type 26, 4 cases; types 12, 33 and 45, 2 cases each; and types 6, 9, 18, 32, 39 and 44, 1 case each. In addition, three cross reactions which could not be separated further, namely 33 and 26, 17 and 26, and 19 and 33, were each encountered once.

Antistreptolysins.—The antistreptolysin levels of acute and convalescent serums are shown in chart 1 for patients with beta-hemolytic streptococci and, for

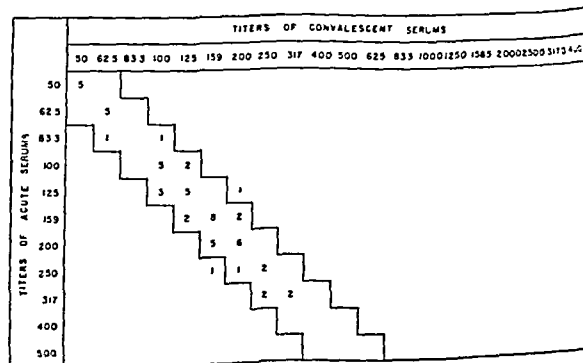


Chart 2.—Antistreptolysin titers of acute and convalescent serums in 60 cases of exudative tonsillitis and/or pharyngitis in which beta-hemolytic streptococci were not isolated. See explanation in legend of chart 1.

patients without streptococci, in chart 2. As the test was performed, a two tube change in titer may be considered as beyond the limit of technical error.⁶ A rise in titer of two tubes or more was arbitrarily considered to indicate a significant increase in antibodies.

2. Fuller, A. T.: Brit. J. Exper. Path. 19: 130, 1938.
3. Swift, H. F.; Wilson, A. T., and Lancefield, R. C.: J. Exper. Med. 78: 127, 1943.
4. Typing serums were available for types 1, 2, 3, 4, 5, 6, 9, 12, 13, 14, 15, 17, 18, 19, 23, 26, 28, 29, 30, 31, 32, 33, 36, 37, 39, 41, 43, 44, 45 and 46.
5. Hodge, B. E., and Swift, H. F.: J. Exper. Med. 58: 277, 1933.

6. Mote, J. R., and Jones, T. D.: J. Immunol. 41: 61, 1941.

Of the 56 patients who harbored beta-hemolytic streptococci, 28, or 50 per cent, developed a rise in antistreptolysin titer of two tubes or more. Of the 60 patients who had no beta-hemolytic streptococci in any of the three throat cultures taken, only 1 showed a similar rise in titer. In this instance there was strong circumstantial evidence that the patient contracted a streptococcal infection after he passed from observation in the hospital and before the second blood specimen was obtained. The almost complete consistency with which an antibody response was demonstrated only in patients in whom beta-hemolytic streptococci were found may be considered evidence of the validity of the cultural methods.

The average interval between onset of illness and the time of convalescent bleeding was four weeks, and this interval was the same for those who did and for those who did not show a rise in antibodies. In 22 of 28 patients the rise was three tubes or more, and in 18 patients the rise was four tubes or more. There were 2 instances of a two tube fall in titer between acute and convalescent serums. While these changes were probably significant, they were most likely due to an infection with beta-hemolytic streptococci that occurred prior to the present illness.

A considerably greater proportion of the cases with streptococci showed a one tube rise in antistreptolysin than was evident in the nonstreptococcus cases. It is entirely reasonable that some of the cases which were regarded as having no antibody response actually had a response which differed only quantitatively from that of the group which was considered to have a significant rise in antibodies. Other evidence of a clinical nature will be presented which tends to bear out the assumption that some of the cases which had no significant antibody response were otherwise similar to those cases which did. The majority of cases in this category, however, closely resembled those of nonstreptococcal sore throat.

The range of antistreptolysin titers which are regarded as normal is variable. It is generally considered, however, that a titer of 250 units or more is elevated, while a titer lower than this is normal.⁷ When only a single serum is available from each patient, such criteria must be used; but when both acute and convalescent serums are available it seems more reasonable to record a change in titer. It can be seen in chart 1 that 7 patients whose titer of antistreptolysin in the convalescent serums was less than 250 had a rise of two tubes or more when compared with the levels of their acute serums; in 3 patients the convalescent titer was 100 or less. If only convalescent serums had been available, none of these patients would be considered as having developed antibodies. When these titers were compared with those of the acute phase serums, however, a change was shown which was believed to be significant.

In 2 cases in which only group C beta-hemolytic streptococci were isolated a significant rise in antistreptolysin titer developed. In all the other cases in which a two tube rise was demonstrated, group A strains were isolated from the throat cultures.

Relation of the Number of Organisms to Development of Antibodies.—Of 56 cases with beta-hemolytic streptococci, the organisms were present in predominance in 21 (table 2). When the cases were divided

according to whether or not there was a demonstrable rise in antistreptolysin titer of the serums, it was found that in more than two thirds of the cases in which streptococci predominated antibodies developed, while in two thirds of the cases in which streptococci were present but not predominant antibodies did not develop. The figures indicated that antibodies were more likely to develop in those cases in which streptococci were numerous, but it was also evident that a considerable number of cases in which streptococci were not numerous might still respond to the antigenic stimulation of the organisms.

Similar conclusions were reached from the data presented in table 1. This table shows that antibodies developed more frequently in those cases in which two or more throat cultures contained beta-hemolytic streptococci than in cases in which the organisms were isolated in only one of three throat cultures. Whereas streptococci were present in two or more throat cultures in 93 per cent of the cases in which antibodies were present, streptococci were isolated from two or more cultures in only 64 per cent of the cases in which antibodies did not develop. This may be considered as further evidence that the organisms present in many of the cases in the latter group were transient and not intimately related to the clinical disease.

TABLE 2.—Relation of the Number of Beta-Hemolytic Streptococci in One or More of Three Throat Cultures to the Development of Antibodies

No. of Organisms	No. of Cases With Antibody Rise	No. of Cases Without Antibody Rise	Total
Present (not predominant).....	13	22	35
Predominant.....	15	6	21
Total.....	28	28	56

Other Laboratory Studies.—The results of other bacteriologic and serologic studies yielded information chiefly of negative value. In addition to beta-hemolytic streptococci, *Haemophilus influenzae*, *Haemophilus haemolyticus*, *Staphylococcus aureus* and pneumococci were found with the same frequency as in normal throats.⁸ The pneumococci were of the "carrier" types that are characteristic of normal persons.⁹ Pneumococcus agglutinins which could be considered significant were found in the serum of only 1 of 20 patients who harbored these organisms.

CLINICAL OBSERVATIONS

In the total series of 116 cases of exudative tonsillitis and/or pharyngitis the additional diagnosis of measles was made in 3 cases and of scarlet fever in 5 cases. There were also 14 cases in which clinical and roentgenographic evidence of pulmonary infiltration developed. With the exception of the latter, most patients had a short febrile course and a rapid recovery. Blood cultures were taken on 19 of the most severely ill patients; in all instances they were sterile. Complications were rare; 3 patients had peritonsillar cellulitis

7. Longcope, W. T.: *J. Clin. Investigation* 15: 269, 1936. Todd, E. W.: *Brit. J. Exper. Path.* 13: 248, 1932. Myers, W. K., and Keefer, C. S.: *J. Clin. Investigation* 13: 155, 1934.

8. Dingle, J. H.; Abernethy, T. J.; Badger, G. F.; Buddingh, G. J.; Feller, A. E.; Langmuir, A. D.; Rueggsegger, J. M., and Wood, W. B., Jr.: *Am. J. Hyg.* 39: 67, 197 and 269, 1944. Straker, E.; Hill, A. B., and Lovell, R.: *A Study of the Nasopharyngeal Bacterial Flora of Different Groups of Persons Observed in London and South-East England During the Years 1930 to 1937*, Ministry of Health, Reports on Public Health and Medical Subjects No. 90, London, His Majesty's Stationery Office, 1939.

9. Finland, M.: *Medicine* 21: 307, 1942.

but none required surgical drainage, and 1 patient developed suppurative otitis media. None of the patients showed the clinical characteristics of Vincent's angina.

Constitutional Symptoms.—In chart 3 are shown the time of onset of specified constitutional symptoms in

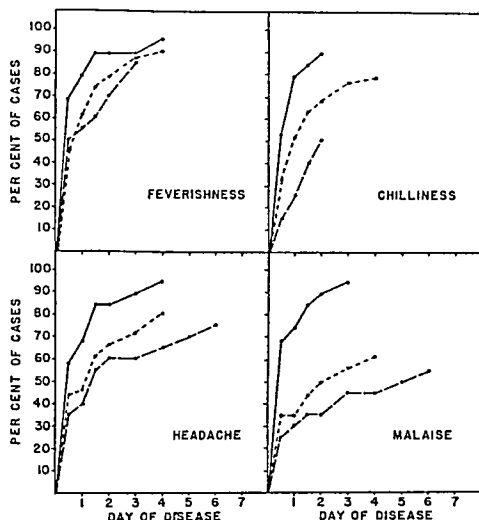


Chart 3.—Onset of specified symptoms. Cumulative frequency by day of disease. Solid lines represent cases of beta-hemolytic streptococci in which antibodies developed; broken lines, cases of beta-hemolytic streptococci in which antibodies did not develop; dotted lines, cases in which there were no beta-hemolytic streptococci. Same symbols used in subsequent charts.

relation to the onset of the disease. These graphs indicate the cumulative frequency of each symptom in relation to the total number of cases in each group included in the analysis. The relationship of the curves of the three groups to one another remained fairly constant for each symptom. It will be seen that, in every instance, symptoms developed more rapidly and occurred in a greater proportion of patients in the group who developed streptococcus antibodies than in

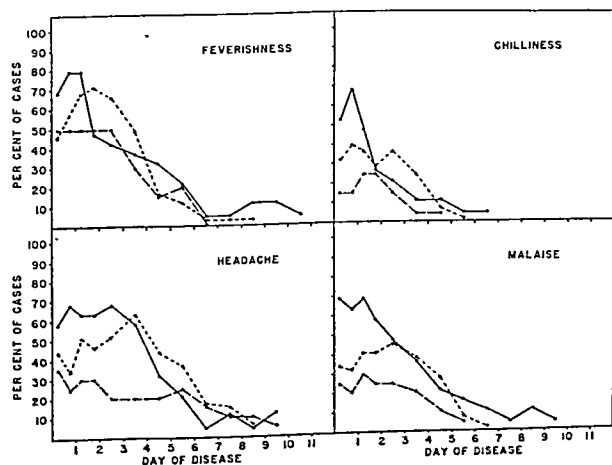


Chart 4.—Frequency of specified symptoms by day of disease. The following rules were used in calculating the percentage frequencies in charts 4, 5, 6 and 7: 1. Patients discharged from the hospital with a specified symptom or sign not present were considered to remain free from that symptom or sign thereafter. 2. Late in the course of illness patients were frequently discharged with a symptom or sign still present. Points were not plotted when this fact made the indicated relationships inaccurate.

the group without streptococci, or with streptococci but without antibodies. The last two groups seemed to be more nearly alike and to be quite distinct from the first.

In chart 4 are depicted the frequencies with which individual symptoms occurred in proportion to the total number of cases in each group by twelve and twenty-four hour periods throughout the disease. Here again there was a rather consistent pattern in each of the three groups, and the relationship of the curves to each other remained the same for each symptom. In the group of streptococcal cases in which antibodies developed, the maximum frequency of symptoms occurred within twenty-four hours of the onset of the disease, while in the other two groups, particularly in the cases in which streptococci were not present, the maximum frequency of symptoms occurred later in the illness.

Localizing Symptoms.—The frequency with which specified localizing symptoms occurred in proportion to the total number of cases in each group by twelve and twenty-four hour periods from the onset of illness is shown in chart 5. As would be expected, soreness of the throat was present in the great majority of cases. It occurred with maximum frequency earlier (within twenty-four hours) in the group of cases with antibodies than in either of the other two groups.

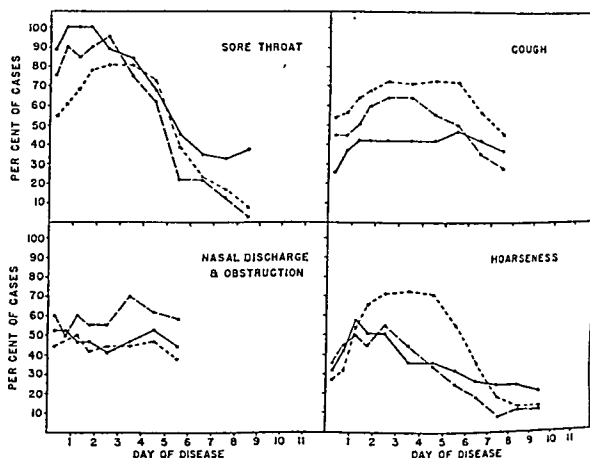


Chart 5.—Frequency of specified symptoms by day of disease.

Cough and hoarseness showed a frequency distribution quite different from soreness of the throat. These two symptoms are not ordinarily considered as essential features of streptococcal sore throat, and although they occurred in about half of the cases in the group they were much more frequent in the cases in which streptococci were not present. The latter group of cases resembled undifferentiated respiratory disease in many ways. The tendency toward more diffuse involvement of the respiratory tract, as indicated by the frequency of cough and hoarseness and the lesser frequency of soreness of the throat, may be considered evidence in favor of this point of view.

Physical Signs.—The important physical signs present in the throat are depicted in charts 6 and 7, which show the frequency of a given sign in relation to the total number of cases in each group under observation on each day, beginning with the second day of disease. In the over all daily frequency of various signs there were no significant differences among the three groups of cases, but, when total frequency was compared with the frequency of severe or intense signs, significant differences became apparent. For example, injection of the tonsils or of the soft palate occurred with equal frequency in all three groups of cases. Diffuse injection of these tissues, however, was twice as frequent

in the cases in which streptococci and antibodies were present as in the other two groups of cases. Similar differences in severity were shown in regard to edema of the uvula, exudate on the tonsils and injection of the pharynx. In general, all of these physical signs were most frequent at the time of the first examination.

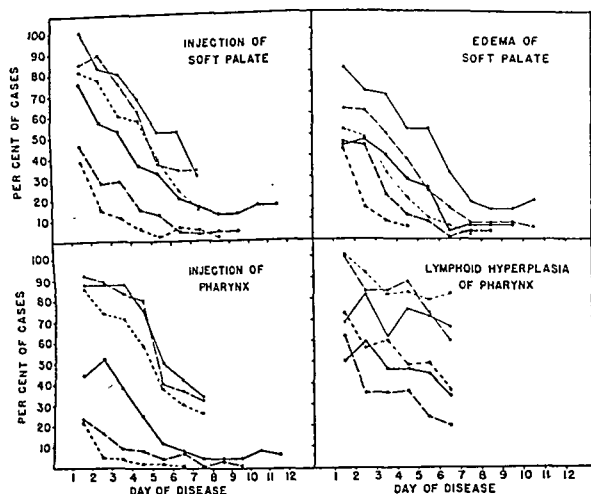


Chart 6.—Frequency of specified physical signs by day of disease. Light lines represent total frequencies; heavy lines, frequencies of pronounced or severe degrees of specified physical signs.

There was but little evidence that new signs appeared in the throat or that signs progressed in intensity after the second day of illness. In contrast to the other physical signs in the throat, the presence of hyperplastic lymph follicles in the pharynx was more common in pharyngitis not associated with beta-hemolytic streptococci than in cases associated with streptococci. It has been noted that hyperplastic lymph follicles on the posterior pharyngeal wall are commonly found in cases of undifferentiated respiratory disease and atypical pneumonia. It was also noted that hyperplastic lymph follicles were more prominent and more common in patients who had no tonsillar tissue than in those who had.

The clinical impressions made at the time the patients were seen in the hospital were compared with the final diagnoses arrived at on the basis of bacteriologic and serologic evidence. Without prior knowledge of

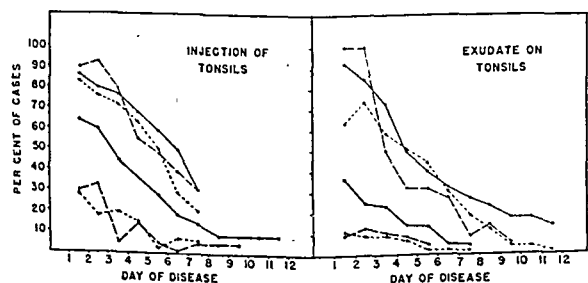


Chart 7.—Frequency of specified physical signs by day of disease. Based on number of patients who had tonsils or tonsillar tags. See symbols in chart 6.

laboratory results, the examiners attempted to predict whether or not beta-hemolytic streptococci would be found in each case. In the 60 cases in which no streptococci were found, the clinical prediction was correct in 50 cases and equivocal in 6, while only 4 cases were erroneously considered instances of "streptococcal sore throat." It was evident that the clinical picture

of nonstreptococcal sore throat was usually quite easily distinguished from that of streptococcal sore throat. There was likewise no difficulty in recognizing the fact that cases in which streptococci were present but no antibody rise developed did not present the physical findings of "streptococcal sore throat." Only 15 per cent of the cases in this group were mistakenly considered instances of the latter. On the other hand, the clinical prediction of "streptococcal sore throat" was made correctly in only two thirds of the patients who developed streptococcus antibodies and was considered possible in an additional 15 per cent of such patients, while in 20 per cent it was thought most unlikely that streptococci were present.

Leukocyte Count and Maximum Temperature.—The cases in which streptococcus antibodies developed had a total leukocyte count which averaged 16,000 on the first or second day of disease, while for the other two groups of cases the average initial white count at the same time was 9,000. After the fourth day of illness there were no significant differences in any of the

TABLE 3.—Relationship of the Number of Beta-Hemolytic Streptococci Present in One or More of Three Throat Cultures to the Maximum Amount of Exudate Observed During Hospital Course in 116 Cases of Exudative Tonsillitis and/or Pharyngitis

	Amount of Exudate					
	Pinpoint		Discrete		Confluent	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Beta-hemolytic streptococci...	16	33	24	55	16	70
Present (not predominant)	11	23	17	39	7	31
Predominant.....	5	10	7	16	9	39
No beta-hemolytic streptococci	33	67	20	45	7	30
Total.....	49	100	44	100	23	100

three groups. The same relationships held for total polymorphonuclear leukocyte determinations and for the percentage of polymorphonuclear leukocytes. When streptococci were present but did not stimulate an antibody response, they likewise did not produce an elevation of the total or polymorphonuclear leukocyte count.

Little difference was found in the average maximum temperature on each day of disease among the three groups of cases.

Correlation of Presence of Tonsillar Tissue and Extent of Exudate with Presence of Streptococci and Development of Streptococcus Antibodies.—It is a common impression that streptococcal sore throat is more likely to occur in persons who have tonsils than in those who have had a tonsillectomy.¹⁰ In this study beta-hemolytic streptococci were found with equal frequency in those patients who had no tonsillar tissue and in those who had tonsils or tonsillar tags. Moreover, streptococcus antibodies developed with equal frequency in the two groups of cases.

A correlation was demonstrated between the amount of exudate in the throat and the presence and numbers of beta-hemolytic streptococci (table 3). Two thirds of the cases in which the exudate consisted of tiny flecks (pinpoint) did not exhibit beta-hemolytic streptococci, and in less than one third of those cases of pinpoint exudate in which streptococci were present were they predominant. However, 70 per cent of the

10. Bloomfield, A. L., and Felty, A. R.: Definition of Hemolytic Streptococcus Parasitism in Upper Air Passages of Healthy People, Arch. Int. Med. 32: 386 (Sept.) 1923. Bloomfield and Felty.¹² Finland.

cases in which the exudate was extensive and confluent showed the presence of streptococci, and of these more than half had the organisms present in predominance. Similarly, streptococcus antibodies developed more frequently in cases with large amounts of exudate than in cases with small amounts of exudate. It was apparent that while exudate in the throat may be associated with or caused by agents other than beta-hemolytic streptococci, extensive exudate was more likely to be associated with the presence of large numbers of these organisms, capable of stimulating the formation of antistreptococcus antibodies. In the absence of streptococci, exudate tended to be pinpoint or small in extent.

Relation of Types of Beta-Hemolytic Streptococci to Clinical and Immunologic Response.—A comparison of

TABLE 4.—*Immunologic Response, Clinical Diagnosis and Distribution of Cases According to Types of Group A Beta-Hemolytic Streptococci Isolated*

Type of Group A Beta-Hemolytic Streptococcus	Case Number	Anti-Streptolysin Change *	Clinical Diagnosis
3	34	0	Streptococcal sore throat, severe
	41	3	Streptococcal sore throat, severe
	70	13	Peritonsillar cellulitis
	74	6	Mild nonstreptococcal sore throat
	75	5	Scarlet fever
	79	20	Scarlet fever
5	29	4	Streptococcal sore throat, moderate
	42	7	Streptococcal sore throat, mild, and atypical pneumonia
	61	4	Streptococcal sore throat
	90	0	Nonstreptococcal sore throat and atypical pneumonia
19	15	0	Nonstreptococcal sore throat
	32	0	Nonstreptococcal sore throat
	35	3	Nonstreptococcal sore throat
	40	0	Nonstreptococcal sore throat and atypical pneumonia
	43	2	Nonstreptococcal sore throat
26	58	2	Peritonsillar cellulitis
	59	0	Nonstreptococcal sore throat
	64	0	Nonstreptococcal sore throat
	83	0	Chronic hypertrophic tonsillitis
	22	0	Streptococcal sore throat, mild
33, 26	45	2	Scarlet fever, mild
	93	0	Streptococcal sore throat, moderately severe
17, 26	110	5	Scarlet fever, severe
	114	0	Nonstreptococcal sore throat

* Number indicates number of tubes increase in titer between acute and convalescent serum.

all cases in which the same type of group A strain was isolated revealed a number of interesting points (table 4). In all the 6 cases in which type 3 was found, antistreptolysins developed in high titer. Moreover, in 5 of the 6 cases the clinical diagnosis was scarlet fever or a severe streptococcal sore throat. It was evident that the type 3 organism was rather virulent and invasive and capable of stimulating antibody formation. To a lesser extent the behavior of the type 5 organisms appeared to be somewhat like that of the type 3 strains. On the other hand, the type 19 organism, which was found in 9 cases, seemed to be lacking in virulent or invasive qualities, since only 1 patient infected with this type of beta-hemolytic streptococcus had a clinically recognizable "streptococcal sore throat," and only 3 of the 9 patients developed a rise in antibodies. The type 26 organisms were of interest, since 5 of the 6 patients infected with this organism were admitted from one battery of 250 men. This was the only instance of focal concentration of cases noted in

the study. The patients were admitted to the hospital over a period of six weeks and had, in general, mild but clinically recognizable streptococcal infections. The organism was apparently not especially potent in stimulating an antibody response.

COMMENT

This study was undertaken for the purpose of investigating the etiology and clinical characteristics of cases of exudative tonsillitis and pharyngitis, especially with regard to the importance of beta-hemolytic streptococci. Such organisms were found in 50 per cent of the cases studied. This frequency is from three to five times greater than has been found in a normal population of the same age group or in patients with respiratory disease without pharyngeal exudate.¹¹ In contrast, previously published studies have indicated that beta-hemolytic streptococci were almost invariably found in cases of exudative tonsillitis.¹²

It is believed that the results of a study such as this more closely approximate the situations met in the general practice of medicine than does the experience of civilian hospitals. In general, cases of mild endemic sore throat have been described. Since the chief criterion for hospital admission was a temperature of 100 F., most of these cases would not have been hospitalized in civilian life. Epidemic streptococcal sore throat was not encountered in this series.

Streptococcus antibodies developed in 28 of the 56 cases in which streptococci were present. The streptococcus etiology of these cases is regarded as certain, and hence they have been considered in a separate group and their clinical characteristics defined. The onset of this group of cases was more abrupt and, in the great majority, the maximal development of symptoms and physical signs was reached within twenty-four to forty-eight hours. In general, the symptoms were not more severe than those experienced by patients with nonstreptococcal sore throats, but characteristic differences were seen in the local physical signs. Pharyngeal and tonsillar mucosal injection was more intense and more diffuse, the degree of edema was greater and the exudate was more extensive in this group of cases. Wide variations in this pattern were apparent, however, and it seemed impossible in many instances to make a clinical diagnosis of "streptococcal sore throat." It should be emphasized that tonsillar tissue need not be present, and exudate was not necessarily extensive. Beta-hemolytic streptococci were present in predominance in half of these cases and were more likely to be predominant in the cases showing the most extensive exudate. These exhibited a definite leukocytosis which was of value in separating them from cases of nonstreptococcal sore throat, and particularly from cases in which streptococci were present but antibodies did not develop.

In another 25 per cent of cases with exudate in the throat, beta-hemolytic streptococci were found but a significant rise in streptococcus antibodies did not develop during convalescence. It has been pointed out that more cases in this group showed a one tube rise in antistreptolysin titer than was found in the group

11. Unpublished observations by Commission on Acute Respiratory Diseases.

12. Blomfield, A. L., and Feltz, A. R.: Bacteriologic Observations on Acute Tonsillitis with Reference to Epidemiology and Susceptibility, *Arch. Int. Med.* 32: 483 (Oct.) 1923.

of cases in which streptococci were not present. It is likely, in some instances, that the difference between cases with streptococci with antibodies and without antibodies was quantitative rather than qualitative. Clinically, several cases were encountered which presented characteristic "streptococcic sore throats" and had streptococci in the throat cultures but did not develop a two tube rise in antibodies. It is known that some patients with scarlet fever do not exhibit a rise in antistreptolysin titer during convalescence.⁶ There is, therefore, no reason to believe that the "antibody" group was necessarily complete and that all cases in the "nonantibody" group are to be regarded a priori as belonging in a different category. Nevertheless, this separation has been made because there were a sufficient number of distinguishing points between the two groups of cases, such as well defined differences in symptoms and physical signs, in number and persistence of streptococci in the throat, and in total and differential leukocyte counts. In summary, it seems justifiable to conclude that in the majority of the cases without streptococcus antibodies the streptococci were not the primary cause of the exudate in the throat and may have had no more relation to the infection than any of the other bacteria normally present in the throat.

In the 50 per cent of cases in this series in which beta-hemolytic streptococci were not found, the etiology remains unknown. In these cases the illness was generally mild but the onset was rather acute and constitutional symptoms were present in the majority of cases. The pharyngeal and tonsillar exudate was rarely confluent, usually small in extent and most often pinpoint. There was a tendency for cough and hoarseness to develop, indicating perhaps that, whatever the causative agent, it affected a larger area of the respiratory tract than the oropharynx alone. Redness, injection and edema of the mucous membranes were present in the majority of instances but were rarely of severe degree. Prominent hyperplastic lymphoid follicles on the posterior pharynx were seen commonly. This type of sore throat appears to be closely related to the majority of cases of undifferentiated respiratory disease.

SUMMARY

One hundred and sixteen hospital patients having exudate in the pharynx or on the tonsils at the time of initial examination were studied. On the basis of laboratory data the following classification was made: 25 per cent of the patients had beta-hemolytic streptococci and exhibited a rise in titer of streptococcus antibodies during convalescence, 25 per cent of the patients had streptococci but did not develop antibodies, and 50 per cent of the patients had no streptococci. Definite differences were demonstrated between cases with antibodies and those without, in regard to mode and rapidity of onset, total frequency of symptoms, severity of certain physical signs and leukocyte count. Cases with beta-hemolytic streptococci which did not develop antibodies were similar in clinical characteristics to cases which did not exhibit streptococci. It is concluded that in approximately 25 per cent of the cases studied the exudate was caused by beta-hemolytic streptococci, while in 75 per cent of the cases the causative agent was unknown. Except for the presence of exudate, the latter group did not appear to differ from the great majority of cases of undifferentiated respiratory disease.

APLASTIC ANEMIA FOLLOWING TRINITROTOLUENE EXPOSURE

A REPORT OF THREE CASES

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As has been pointed out many times, trinitrotoluene is a toxic material and causes numerous symptoms and signs. Fortunately, the great majority of these are of minor consequence. The most frequent complaint of the handler of trinitrotoluene is a dermatosis. This is generally mild and usually confined to the hands. Next in frequency are gastric complaints with nausea, vomiting, a feeling of fullness and occasionally a rather typical peptic ulcer syndrome. Chest pain, cough and nosebleeds are complained of by relatively fewer workers. There are also two other pathologic changes caused by trinitrotoluene and these are of a much more serious nature. The first and more common of these is hepatitis. The second and much more disastrous result of exposure is aplastic anemia.

It would appear that in certain susceptible persons the bone marrow may be damaged by trinitrotoluene. It is suggested that individual predisposition is of principal importance because of the rare occurrence of this disease in spite of the great many workers exposed to trinitrotoluene in this war and the last. That the degree of susceptibility of the bone marrow is important will also be shown by the occurrence of this phenomenon in three workers whose environments showed a relatively low concentration of the toxic material. These men developed a fatal disease while in trinitrotoluene exposures that varied close to the maximum permissible limit of 1.5 mg. per cubic meter of air. It is also of interest to note that during the time of operation of this particular plant only 1 case of trinitrotoluene hepatitis has occurred.

The English literature has reported a number of cases of fatal aplastic anemia in munitions handlers.¹ The exposure, clinical picture and course have been not unlike those included here.

It is also true that the American munitions industry as a whole is seeing about as many fatal cases of aplastic anemia as of hepatitis. The mortality of this disease among the few cases observed has been high. I am informed that half of the first eight trinitrotoluene fatalities reported in American shell and bomb loading plants during the first 93,000 man-years of operations were cases of aplastic anemia.² In other plants, these cases have also occurred in places of relatively low trinitrotoluene concentration. One case of aplastic anemia followed recovery from hepatitis in England,³ but such a combination has not been seen in this country to my knowledge.

The age, physical characteristics, previous employment and other factors appear to have no bearing on the susceptibility in these cases.

The outstanding factor in these cases would appear to be exposure to trinitrotoluene dust and fumes for a

1. Evans, R. M.: T. N. T. Jaundice, *Lancet* 2: 552 (Nov. 8) 1941. Hilton and Swanston.⁴

2. McConnell, W. J., and Flinn, R. H.: Paper read at the eighth annual meeting of the Industrial Hygiene Foundation of America, Inc. in November 1943.

3. Hilton, J., and Swanston, C. N.: Clinical Manifestations of Tetryl and Trinitrotoluene, *Brit. M. J.* 2: 509 (Oct. 11) 1941, cited in T. N. T. *Lancet* 2: 605 (Nov. 15) 1941.

period of several weeks to several months. From experience gained in England, it has generally been felt that if an employee tolerates trinitrotoluene for as much as five or six months he is unlikely to suffer any dangerous consequences.³

It has not been possible to reproduce aplastic anemia in dogs with trinitrotoluene, and it has been incorrectly suggested by myself⁴ and others⁵ that it was likely that the so-called aplastic anemia was a final stage of the anemia so often seen in trinitrotoluene handlers and was due to blood destruction. That this is not true is well shown by the typical hypoplastic or aplastic appearance of the bone marrow in these cases as well as other recent ones.

In my experience the patient usually presents himself complaining of weakness and easy fatigue. He may state that he noticed a few purple spots and came in because he was curious about them. Sore mouth or respiratory complaints may be the only symptoms. A blood count which should be taken on any trinitrotoluene handler with such complaints will usually give an immediate indication of the severity of the disease. Sternal bone marrow biopsy should be done in cases showing suggestive blood pictures. This procedure will rule out aleukemic leukemia, agranulocytosis and

The prognosis is extremely grave, and most of the cases have run a very short course in spite of intensive treatment.

REPORT OF CASES

CASE 1.—A white man aged 26, who had been employed in the shipping room of a bomb line for several months, reported to the plant hospital on Dec 15, 1942 complaining of general malaise, aching pains and upper respiratory infection. Unfortunately no blood work was done and the patient was allowed to go home, where his family physician gave him 100 grams (65 Gm.) of sulfanilamide over a period of two days. He was also given elixir of phenobarbital and a "cold" capsule. After several days of this treatment he began having a sore mouth, and a dentist was consulted because it was thought that he had "trench mouth." The dentist stated that it was not a Vincent's infection and prescribed a mouth wash. He gradually became worse and was sent to a nearby hospital on Jan 2, 1943. Shortly after admission a few purpuric spots were noted over the lower extremities. These rapidly increased in number and occurred over the rest of the body. On the third day he had epistaxis, and the following morning he had tarry stools. During the hospital stay he was given several transfusions that resulted in severe reactions. He progressed rapidly downward, developed deep jaundice by the sixth day and died on the seventh. The laboratory findings are summarized in table 1. Autopsy findings of particular interest were confined to the bone marrow, kidneys and liver. Dr W R

TABLE 1—Laboratory Reports in Case 1

Date	R. B C in Millions	Hemo- globin, Gm	W B C in Thousands	Neutro- phils, %	Lympho- cytes, %	Large Mono- nuclears, %	Serum Bilirubin, Mg	Transfusion if Whole Blood, Cc
1/ 2/43 . . .	35	8	60	5	80	6	...	100
1/ 4/43 (pronounced transfusion reaction)	31	7	50	28	60	5	...	100
1/ 5/43 (mild transfusion reaction)	28	6.5	42	15	80	...	...	100
1/ 7/43 (profuse epistaxis)	25	6.5	24	...	...	...	...	100
1/ 8/43 (patient jaundiced and comatose)	19	...	0.7	...	...	...	2.2	100
1/ 9/43 (pronounced melena)	14	...	1.8	14	80	...	...	100
1/10/43 (died)	...	...	...	...	...	...	...	100

Medication included pentnucleotide, liver extract and extract of yellow bone marrow

thrombocytopenic purpura, the three most likely confusing conditions. It is not likely that the bone marrow study will be of any prognostic significance in determining the cases of aplastic anemia in which survival will occur with careful treatment. By that I mean that, even though marrow destruction does not appear particularly extensive, death may follow rapidly in spite of frequent transfusions.

Treatment consists primarily in removal from contact with trinitrotoluene and other substances known to depress bone marrow and careful cleansing of the skin to remove traces of the poison. Support with frequent transfusions of fresh blood is of the greatest importance in prolonging life. Other therapeutic aids of somewhat questionable value include pentnucleotide in full doses of 40 cc daily, crude liver extract, extract of yellow bone marrow, a high vitamin, high caloric diet and scrupulous care of the mouth in hope of preventing infection. The use of concentrated or diluted cells is suggested and was used in 1 case. It solves the problem of obtaining blood if a plasma bank is near. The cells should be not over 24 hours old in order to receive the value of the short lived white cells. This is suggested as there is no lack of plasma in these patients. It is felt that this method should be given a further test.

Mathews, the pathologist, reported "The sternal bone marrow was brownish red but there was no marrow fluid on the cut surface on pressure of this tissue. Sections from the sternal marrow showed a marked degree of hypoplasia. In fact, for the most part they are devoid of marrow cells and are in an aplastic state. Areas of considerable size show nothing but fat and marked congestion of the sinusoids and capillaries. This last feature accounts for the predominantly red color exhibited by the marrow on gross examination. Both the erythropoietic and the leukopoietic elements are involved. The marrow cells remaining are of the mature or more mature types."

"The liver cells are more granular than normal and some of them are vacuolated. The latter change tends to occur around the central vein, where there is also necrosis. The necrosis is predominantly central but does occur to a less extent in the midzone . . ."

Dr. Mathews' comment on his findings is pertinent and is quoted in full. "The primary disease in this case was an acute form of aplastic anemia. It is not possible to suggest from these examinations whether this is a primary or secondary form of the disease. I mean, by secondary, anemia due to some agent such as benzol, trinitrotoluene or x-rays. The etiology would have to be established or excluded by history of exposure to one of the agents. It can be said that this patient's clinical features and the autopsy findings are perfectly consistent with the primary form, but, on the other hand, there are no inconsistencies on these bases for the secondary type."

"He developed terminal pneumonia and sepsis which was not unexpected in the presence of almost total disappearance of the granulocytes from the peripheral blood as well as from the marrow. This neutropenia was responsible for the development of the oropharyngeal ulcerations which I understand

4. Eddy J H. Some Toxic Reactions of Common Explosives, New Orleans M & S J 95:511 (May) 1943.
5. Voegtlin, C., Hooper, C W., and Johnson, J. M.. Trinitrotoluene Poisoning. Its Nature, Diagnosis and Prevention, Bull 126, Hyg Lab, U S P H S, 1920.

existed and also let the gap down for invasion of the blood stream by perhaps a number of types of bacteria from the mucous surfaces, especially the oropharynx. Bacterial colonies were noted in sections from the lungs, spleen, lymph nodes and liver. The pneumonia was of the type that usually develops in the course of agranulocytosis—the exudate is devoid of polymorphonuclear leukocytes.

this patient had multiple blood transfusions, one has to consider the possibility of a transfusion reaction. Ordinary methods of testing for compatibility of blood to be transfused do not detect the presence of the Rh factor. Assuming that the patient was Rh negative and the donor Rh positive, one would have a set up that might eventuate in a transfusion (hemolytic) reaction. The changes in the kidneys and the focal necroses in

TABLE 2.—Laboratory Data in Case 2

Date	Serum Bilirubin, Mg.	R. B. C. in Millions	W. B. C. in Thousands	Poly- morpho- nuclears, %	Small Lympho- cytes, %	Platelets	Reticulo- cytes, %	Hemo- globin, %	Blood Trans- fusions, Cc.
4/22.....	0.35	3.5	1,250	19	80	17,000	0.0	63.2	.....
4/23.....	500
4/24.....	500
4/25.....	3.69	1,550	20	80	21,000	0.1	.....	.....
4/26.....	2.36	850	30	64	.....	.....	.....	1,000
4/28 (Roentgenogram of chest).....	0.32	3.46	250	30	70	.....	0.1	61	.....
4/30.....	3.66	550	..	..	.....	0.0	53.6	.....
5/ 2.....	3.21	900	69	28	.....	0.1	61	500
5/ 5.....	3.05	950	23	75	.....	0.2	56	.....
5/ 7 (excision and drainage of gluteal abscess).....	3.07	1,050	..	..	.....	0.0	53.6	.....
5/11.....	3.1	2,300	78	20	.....	0.1	.....	.....
5/17.....	1.19	3,600	42	55	.....	0.0	24	500
5/24.....	1.63	3,000	69	31	.....	0.2	29	.....
5/30.....	2.05	2,900	50	50	.....	0.5	31	500
6/ 7 (sternal bone marrow biopsy).....	1.46	2,200	..	..	.....	0.4	26	500
6/12.....	1.53	.....	..	..	.....	.....	29	.....
6/14.....	500
6/24 (second admission).....	2.01	1,250	..	..	.....	0.4	0.34	1,000
7/ 7 (third admission).....	2.31	1,350	..	..	.....	0.5	45	500
7/19 (fourth admission; had reaction to blood).....	360
7/24 (fifth admission).....	1.15	.....	..	..	.....	.....	18	1,000
8/10 (sixth admission; having gastrointestinal hemor- rhages).....	1.30	.....	..	..	.....	.....	26	500
8/18.....	2.33	.....	..	..	.....	.....	43	500
8/25.....	2.89	.....	..	..	.....	.....	45	500
9/ 1.....	2.53	.....	..	..	.....	.....	34	600
9/ 3.....	0.70	.....	..	..	.....	.....	16	1,000
9/ 4.....	1.81	.....	..	..	.....	.....	35	.....
9/ 5.....	1.39	.....	..	..	.....	.....	24	1,500
9/ 7.....	2.77	.....	..	..	.....	.....	40	.....
9/10.....	1.30	.....	..	..	.....	.....	26	.....
9/15 (seventh admission).....	1.42	.....	..	..	.....	.....	18	1,500
9/18 (eighth admission).....	1.07	.....	..	..	.....	.....	19	1,000
9/20 (ninth admission).....	2,000
9/23.....	1.26	.....	..	..	.....	.....	22	2,000
10/ 2.....	1.57	.....	..	..	.....	.....	21	500
10/ 4 (tenth and final admission).....	0.65	.....	..	..	.....	.....	8	.....

Patient came to hospital in shock and having profuse gastrointestinal hemorrhage. Died on Oct. 4, 1943.

On April 22: stool for occult blood was positive; mean corpuscular volume, 91.1 cubic microns; mean corpuscular hemoglobin, 28.2 micro micrograms; urine for urobilinogen negative; no clot retraction; normal fragility test; Wassermann reaction negative; clotting time 3:30; bleeding time 2:30.

TABLE 3.—Laboratory Reports in Case 3

Date	R. B. C. in Millions	Hemo- globin in Gm.	W. B. C. in Thou- sands	Poly- morpho- nuclears, %	Small Lympho- cytes, %	Large Lympho- cytes, %	Eosino- phils, %	Clot Retrac- tion	Tourni- quet Test	Trans- fusions (Whole Blood), Cc.	Trans- fusions (Cells Only), Cc.
10/13.....	3.41	10	3.80	26	65	5	4	No	Pos.	.....	.....
10/14.....	.....	.....	2.80	35	62	1	2	.....	.....	750	.....
10/15.....	3.85	10.7	1.00	46	51	..	3	.....	.....	900	.....
10/16.....	4.52	15.2	0.80	24	76	..	..	.....	.....	500	.....
10/17.....	4.56	15.5	0.25	12	80	4	4	.....	.....	.....	.....
10/18.....	4.53	14.8	0.30	17	81	2	..	.....	.....	500	1,000
10/19.....	5.11	17.0	0.70	2	89	2	..	.....	.....	.....	.....
10/20.....	5.33	17.0	0.74	2	84	12	2	.....	.....	.....	.....
10/21 (stopped pentnucleotide, stopped liver extract).....	5.21	17.5	0.44	2	94	4	..	.....	.....	.....	1,000
10/21 (buttocks very sore, no abscess).....	5.48	18.6	0.54	3	94	..	1	.....	.....	.....	.....
10/22 (passing blood in urine, diarrhea; patient weaker; more petechiae).....	5.34	17.5	0.30	2	94	4	..	.....	.....	500	500
10/23 (melena, ulceration of pharynx; heavy hematuria; patient agglutinating own cells; extreme weak- ness, wet lungs).....	4.48	16.1	0.20	..	..	..	..	.....	.....	.....	.....
Patient died	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

R. B. C. normal in appearance. W. B. C. mature. Patient receiving liver extract intramuscularly 2 cc. daily; pentnucleotide 10 cc. intramuscularly daily. Had cleansing bath to remove all trinitrotoluene from skin, checked with skin webster. Sternal bone marrow biopsy showed an aplastic marrow on Oct. 10, 1943.

"The jaundice which developed during the last forty-eight hours of life is, in my opinion, mainly of the hemolytic type. The urine was negative for bilirubin but positive for urobilin and occult blood (benzidine test). Although there were focal necroses in the liver, one would expect some bilirubin in the urine provided the jaundice had been due to toxic hepatitis. A septicemia due to a hemolytic micro-organism (*Streptococcus haemolyticus*?) could have caused the jaundice. Also, since

the liver could be due to this cause. Of course, it is not possible to say from the sections whether the pigment casts in the renal tubules are hemoglobin or bile (bilirubin). There are no tests that differentiate these in fixed tissue specimens. The histologic changes may be identical in both."

CASE 2.—A white man aged 65 had been employed in a bomb line cooling bay for four months. He developed a respiratory infection in March that seemed of no consequence but lasted

several weeks. He took four Dasin capsules⁶ and compound infusion of senna during this time but no other medicine. He did not report this illness and resigned on March 30, 1943. During the first part of April he noted a few purplish spots on his lower extremities. He became weaker and had to go to bed at about that time. On April 21 the patient first reported to the hospital, at which time he was literally covered with purpuric spots and had several large areas of ecchymosis on his buttocks. The blood picture showed depression of all cellular elements, and a diagnosis of aplastic anemia was made. He was referred to a local sanatorium, and table 2 shows a summary of laboratory findings and treatment through his many admissions. A sternal bone marrow biopsy was studied by Dr. W. R. Mathews, who reported findings identical to those in case 1. The patient finally died on October 4, having lived about five months after discovery of his disease. His death was caused by shock precipitated by massive gastrointestinal hemorrhages.

CASE 3.—A white man aged 50 had been engaged in sweeping the floor in a cooling bay of a bomb loading line for about two months. He had been in excellent health. During a period of approximately forty-eight hours prior to reporting to the hospital he had noted that he did not feel quite as well as usual. About twenty-four hours before his appearance at the infirmary he noticed a number of small purplish spots on his lower extremities, and this was the thing that caused him to seek medical advice. When first seen the patient was well developed and well nourished and did not appear acutely ill. He treated his complaints lightly and was anxious to return to his day's work. He appeared more in search of information about himself than seeking treatment. Examination showed several petechiae on the upper extremities, with one or two large areas of subcutaneous hemorrhage in the right elbow region. The tourniquet test was positive. Blood studies revealed moderate depression of all cellular elements of the blood, with the platelet count being definitely reduced. In view of these findings a diagnosis of aplastic anemia seemed likely, and this was later proved by sternal bone marrow biopsy. Details of the study of the marrow were essentially no different than that seen in the first case. The usual therapeutic aids were given, including 3,100 cc. of fresh blood. His total red cell count reached 5,480,000, with 18.6 Gm. of hemoglobin, but his white cell count was never raised as high as 1,000 cells. Besides the fresh whole blood he was also given the cellular element from 2,500 cc. of blood. These cells were from the fresh blood prepared in the plasma bank at Shreveport Charity Hospital and were used within a few hours of preparation. The hospital course is summarized in table 3. His death followed a short episode of what undoubtedly was blood stream invasion.

Unfortunately, autopsies could not be secured in the last 2 cases.

COMMENT

The diagnosis of aplastic anemia in these 3 cases seems to be unquestionable. Case 3 shows a blood picture that may be confused with agranulocytosis, but the presence of purpuric phenomena, a low platelet count and a typical bone marrow picture substantiates the diagnosis of aplastic anemia. It may be well to stress the value of bone marrow biopsy with preparation of stained sections as a diagnostic aid in cases of this type. The incrimination of trinitrotoluene absorption as a cause of the pathologic process may be open to question particularly in the first case, in which 100 grains of sulfanilamide and cold capsules were given prior to a definite picture of aplastic anemia. On the other hand, who can deny that his original symptoms were not those of aplastic anemia? In this particular case I was unwilling to attribute the death to trinitrotoluene, but when 2 more cases developed in the same plant it was

felt that a change of outlook was in order. In these cases an investigation of previous employment, use of drugs, recent infections and other possible chemical or x-ray exposure was carefully made. In no case other than that noted was anything detected that appeared to be of importance. That any or all of these cases may be the so-called primary form cannot be denied; but the occurrence of these 3 cases fairly close together would seem to be asking a great deal of coincidence. These men were investigated from the standpoint of adherence of rules regarding change of clothes, bathing and other suggested precautionary measures. Only the first case showed anything of note and that was a failure to take the prescribed daily shower at the end of work. Bathing rules had not been strictly enforced among shipping room workers because it was felt that contamination was negligible.

Periodic examinations had been made on all of these men but had failed to give any warning of the impending disaster. The periodic examination is done by a nurse every three weeks, the findings being then studied by the medical staff. The examination consists, at this plant, of a general inspection with particular attention being paid to the condition of the skin and the color of the mucous membranes. The history regarding appetite, nausea and vomiting, abdominal pain and the sense of well-being is elicited. Following this, a record is made of the pulse, blood pressure and weight. The laboratory examination consists only of a hemoglobin determination. The entire procedure is intended only as a screening process, and suggestive findings call for more thorough investigation or a change in work for the employee. In case 3 the examination revealed nothing of note, with a hemoglobin of 13.5 Gm. only three days prior to hospitalization. That such is possible needs only a glance at the tables for confirmation, as they show a remarkably rapid course.

Test of air contamination in places where these men worked show no demonstrable trinitrotoluene in the shipping room where the first patient worked. The conditions in the cooling or puddling room were not as good, showing trinitrotoluene concentrations of from 1 to 3.5 mg. per cubic meter of air. While some of the samples are higher than the accepted maximum allowable concentration of 1.5 mg. per cubic meter, this is not an environment of considerable contamination as compared to a few other work rooms on a bomb loading line.

Box 1162.

Medical Progress in Alexandria.—After the death of Erasistratus (300-225 B. C.) there was a lull in medical progress in Alexandria for almost five hundred years. The Greek medical center where the doctrines of Hippocrates and Aristotle were taught became a babel of medical concepts. Personal ambition, jealousy and greed divided the medical profession into many sects, systems and methods of teaching, each of which bore a distinct name. Those that received their main inspiration from the "Father of Medicine" were known as Dogmatists, albeit his methods of scientific investigation were not followed. Those who rejected medical authority and discarded the study of anatomy and physiology came to be known as Empirics. They depended entirely on experience (mainly of their own) as the basis of their therapy of the sick. Their principle was "post hoc, ergo propter hoc," a doctrine which still acts as an incubus in modern therapeutics and a handicap to scientific investigations.—Gordon, Benjamin Lee: *The Romance of Medicine*, Philadelphia, F. A. Davis Company, 1944.

6. Dasin capsules contain acetophenetidin, Dover's powder, atropine sulfate, acetylsalicylic acid, camphor and caffeine.

THE EFFECT OF SODIUM BICARBONATE ON THE SERUM SALICYLATE LEVEL

DURING SALICYLATE THERAPY OF PATIENTS
WITH ACUTE RHEUMATIC FEVER

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During a study of massive salicylate therapy in rheumatic fever, a patient who was taking a constant daily amount of sodium salicylate by mouth and was maintaining a fairly constant serum salicylate level asked for sodium bicarbonate to relieve his "gastric discomfort." When this was given it was noted that the serum salicylate level fell decidedly, although the patient continued to receive the same dose of sodium salicylate.

Since it is claimed that plasma salicylate levels of at least 350 micrograms per cubic centimeter are impor-

the total daily dose was given every four hours day and night. After the serum salicylate level had become fairly stabilized, equal doses of sodium bicarbonate were given orally with each dose of sodium salicylate. Sodium bicarbonate was given for a variable period of time; it was then withdrawn and the patient was maintained for a further period on salicylate alone.

Two other healthy adults were given equal doses of sodium salicylate and sodium bicarbonate from the beginning of the experiment. After five days, sodium bicarbonate was withdrawn and the subjects were maintained for a further period on salicylate alone.

RESULTS

In chart 3 are shown observations made on a patient with acute rheumatic fever. The serum salicylate level during the first twelve days varied between extreme values of 381 micrograms and 558 micrograms per cubic centimeter of serum. Administration of sodium bicarbonate was then begun. Twenty-four hours after the initial dose, the serum salicylate level had fallen from 558 to 416 micrograms per cubic centimeter and, after another twenty-four hours, to 226 micrograms per cubic centimeter. On the third, fourth and fifth days

Successive Daily Serum Salicylate Levels During (1) a Control Period When Sodium Salicylate Alone Was Given, (2) a Period When the Same Dose of Sodium Salicylate and Approximately Equal Amounts of Sodium Bicarbonate Were Given and (3) a Period When Sodium Bicarbonate Was Withdrawn and Sodium Salicylate Administration Was Continued

Subjects		Successive Daily Serum Salicylate Levels (Micrograms per Cubic Centimeter of Serum)																		
		1. Period During Which Subjects Were Taking Sodium Salicylate					2. Period During Which Subjects Were Taking Approximately Equal Doses of Sodium Bicarbonate and Salicylate								3. Period During Which Sodium Bicarbonate Was Withdrawn and Sodium Salicylate Continued					
A. J., active rheumatic fever		464	472	459	532	558	416	226	209	169	199	...	...	...	...	270	406	461	486	465
R. U., active rheumatic fever																				
	1st period of study...	435	438	440	465	433	359	283	251	247	275	279	317	311	300	370	447	484	495	499
	2d period of study...	415	447	459	430	422	355	275	184	199	189	181	161							
R. H., active rheumatic fever		...	411	438	453	438	398	240	157	190	185	...	...	...	...	267	356	380		
A. A., active rheumatic fever		405	419	427	457	420	305	263	277	258	...	...	...	...	...	389	439			
K. S., healthy woman		...	...	411	492	571	446	297	308	...	...	...	...	...	...	444	468			
R. W., healthy man		...	...	396	405	460	374	567	281	...	...	...	...	...	...	506	369	404		
R. D., healthy man		...	...	...	...	...	260	301	246	217	265	253	...	...	...	415	415			
P. E., healthy man		...	...	...	...	...	267	319	316	315	284	269	...	...	...	427	484			

tant in the treatment of rheumatic fever¹ and since it is customary to give equal amounts of sodium salicylate and bicarbonate during salicylate therapy, it was thought of importance to investigate the influence of sodium bicarbonate on the serum salicylate level.

METHOD

Daily determinations of blood salicylate levels were made according to the method recently described by Brodie, Udenfriend and Coburn,² with the one modification that the determinations were made on serum instead of plasma.³ In order to minimize the irritant effects of the drug on the gastrointestinal tract, enteric coated tablets of sodium salicylate were used exclusively throughout the work.

Four adult patients with acute rheumatic fever and 2 healthy adults were given sodium salicylate by mouth in doses ranging from 7.2 to 10 Gm. a day. The dose for each individual was kept uniform, and one sixth of

the salicylate levels were respectively 209, 169 and 189 micrograms per cubic centimeter. After the administration of sodium bicarbonate was discontinued, the serum salicylate level rose rapidly, and one, two, three, four, five and six days after the sodium bicarbonate was discontinued the salicylate levels were 270, 406, 461, 486, 465 and 506 micrograms per cubic centimeter of serum respectively. Equally striking effects were obtained in 3 other rheumatic patients.

The results obtained in a healthy woman are shown in chart 1. Comparable effects were observed in a healthy man. The findings are essentially similar to those seen in the cases of rheumatic fever. The control periods, i. e. the periods during which sodium salicylate alone was given, are not as long as those observed in the cases of rheumatic fever because they were thought to be unnecessary. It should be noted, therefore, that the serum salicylate level had not yet reached a plateau and was still increasing when the administration of sodium bicarbonate was begun.

These observations show clearly that a serum salicylate level which has been established and is being maintained by the oral administration of sodium salicylate is definitely lowered when approximately equal amounts of sodium bicarbonate are given simultaneously.

It was then thought to be of interest to investigate, in another type of experiment, what serum salicylate level can be established when equal doses of sodium

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1. Coburn, A. F.: Salicylate Therapy in Rheumatic Fever, Bull. Johns Hopkins Hosp. 73: 435-464 (Dec.) 1943.

2. Brodie, B. D.; Udenfriend, S., and Coburn, A. F.: The Determination of Salicylic Acid in Plasma, J. Pharmacol. & Exper. Therap. 80: 114-117 (Jan.) 1944.

3. A few determinations of salicylate levels on plasma and serum obtained from the same sample of blood showed that the serum levels are slightly higher than the plasma levels. This difference, obtains whether the determination is done immediately after the blood has been drawn or after the blood has been allowed to stand as long as thirty-six hours at room temperature.

bicarbonate and salicylate are given simultaneously from the beginning of the experiment. The results obtained in a healthy man are shown in chart 2. In this experiment the serum salicylate level varied between 267 and 319 micrograms per cubic centimeter. When sodium

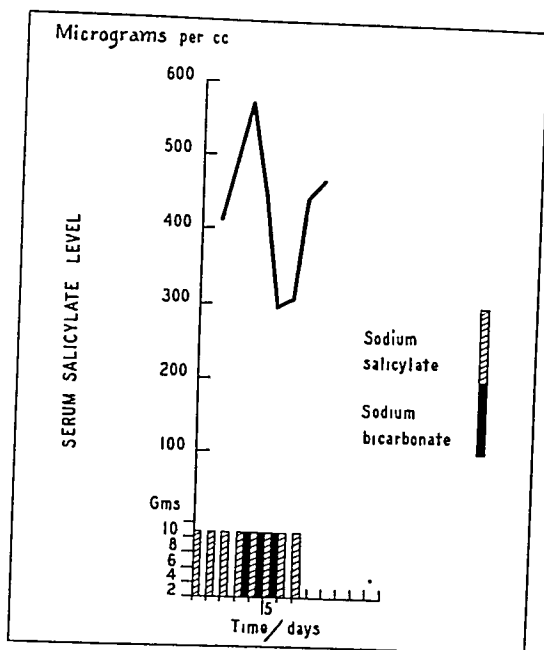


Chart 1.—Effect of sodium bicarbonate on the serum salicylate level of a healthy woman.

bicarbonate was withdrawn, the salicylate level rose to 427 micrograms per cubic centimeter within twenty-four hours and 484 micrograms per cubic centimeter within forty-eight hours. It is thus apparent that the

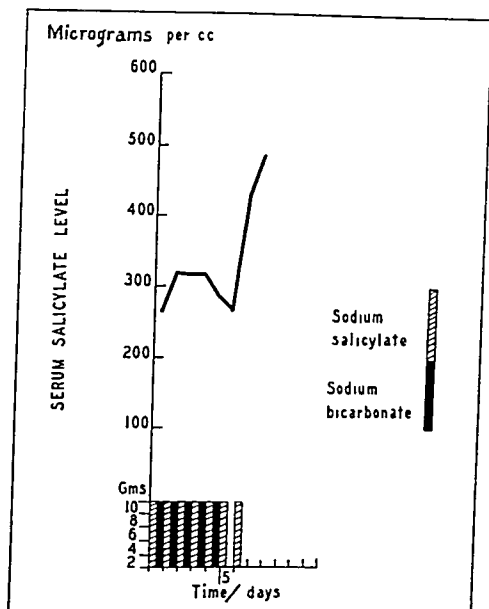


Chart 2.—Effect of sodium bicarbonate on the serum salicylate level of a healthy man.

simultaneous administration of equal doses of sodium bicarbonate and salicylate prevents the establishment of as high a salicylate level as is obtained when salicylate alone is given. The effect was similar with another healthy subject.

The results obtained in all the experiments are summarized in the accompanying table.

COMMENT

Recent studies by Coburn¹ suggest that the maintenance of a high salicylate level in the blood is important for the effective treatment of acute rheumatic fever. He has demonstrated that, whereas levels below 200 micrograms per cubic centimeter of plasma are sufficient to relieve the symptoms, it seems probable that a concentration of at least 350 micrograms may be required to suppress the "rheumatic reaction." Our observations show that sodium bicarbonate, in the amounts customarily given together with sodium salicylate, definitely depresses the blood salicylate level. The implication of this finding with respect to adequate salicylate therapy is obvious.

It was considered possible that a high concentration of sodium bicarbonate in the blood might invalidate the method of determining the serum salicylate level. The

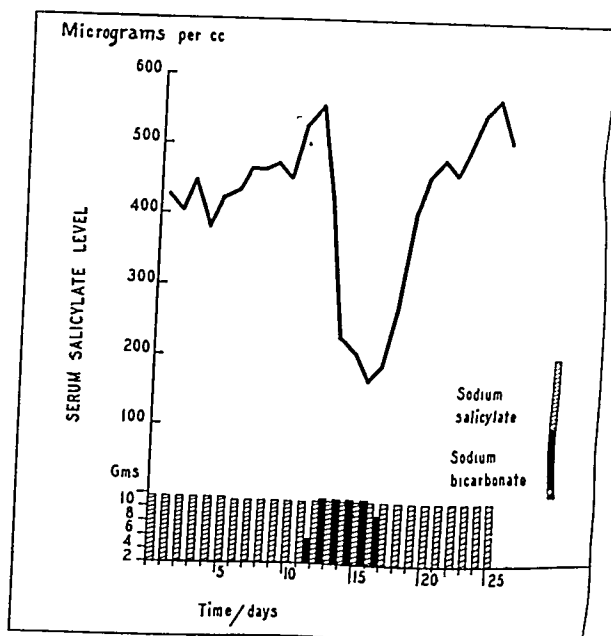


Chart 3.—Effect of sodium bicarbonate on the serum salicylate level of a man with acute rheumatic fever.

salicylate level was determined on samples of several serums. The determinations repeated after sodium bicarbonate had been added in the serums (2 mg. of sodium bicarbonate per cubic centimeter of serum) yielded identical results.

A priori, it would seem that the fall in the serum salicylate level caused by sodium bicarbonate could be due to one of a number of factors or to several acting together: (1) Sodium bicarbonate interferes with the absorption of sodium salicylate in the intestine; (2) sodium bicarbonate causes an increase of extracellular fluid which leads to a decrease in the titer of sodium salicylate in the blood; (3) sodium bicarbonate increases the renal excretion of sodium salicylate or its derivatives. At the present time it is not possible to say which of these may be responsible for the observed fact.

CONCLUSIONS

1. When a serum salicylate level has been established and is being maintained by the oral administration of enteric coated tablets of sodium salicylate, the simul-

taneous administration of approximately equal amounts of sodium bicarbonate results in a definite fall of the serum salicylate level.

2. The simultaneous administration of equal amounts of sodium bicarbonate and enteric coated sodium salicylate prevents the establishment of as high a serum salicylate level as would be obtained with sodium salicylate alone.

TREATMENT OF RECURRING ATTACKS OF LOW BACKACHE WITH- OUT SCIATICA

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Recurring attacks of low lumbar backache, plus sciatica in the back of the leg, are almost pathognomonic of defective intervertebral disks. With few exceptions the backache and sciatica are intensified by coughing and sneezing during the periods of acute pain. A frequent story given by these patients is that for some weeks, months or years there are only recurring attacks of backache, i. e. without the sciatica, and that at a later date the sciatica is superimposed. Such histories suggest that with the recurrent backaches alone one is dealing with precisely the same underlying lesion as when the sciatica is added. This report of 20 cases is from this group, none of whom have ever had sciatica. Moreover, there is no greater uncertainty in the diagnosis of the lesion without, than with, sciatica; nor is there any greater difficulty in localizing the affected disk or disks. It is by no means to be inferred that all patients with recurring attacks of backache or backache with sciatica are advised to be operated on. There are many who can go along in comparative comfort by avoiding strains to the back. Operation is indicated when the backaches are frequent and severe. However, since the operation is without risk and the results are now excellent and permanent, there is no reason for patients to suffer, particularly since spontaneous cure is uncommon and requires many years.

DIAGNOSIS OF DEFECTIVE DISKS

From signs and symptoms alone, defective disks causing backache with or without sciatica can be diagnosed in approximately 95 per cent of all cases; with symptoms plus x-ray examination of the lumbar spine, in over 98 per cent. X-ray examinations serve to differentiate spondylolisthesis and congenitally defective vertebrae, both of which produce symptoms that are quite similar.

From x-ray examinations of the lumbar spine alone the diagnosis can be made in over half the cases. Narrowing of the intervertebral space is pathognomonic objective evidence of a defective disk. Not infrequently two disks are narrowed in the roentgenogram and occasionally all the lower three; at times, other disks are similarly affected. When multiple, they may or may not be affected in sequence. In 12 of the 20 cases in this series of disks without sciatica, this roentgenographic evidence was present.

Until recently, defective disks were diagnosed only by injections of iodized poppyseed oil, air or other contrast mediums into the spinal cord. In recent communications I have shown that these are never necessary and are always inadvisable, for the following reasons: 1. They diagnose and localize disks in only

about one fourth of the cases because only the large disks produce a filling defect in the contrast medium. 2. They frequently give equivocal results and therefore unreliable information. 3. They are painful, and if a solid contrast material is used and removed (as it should be) it is a long and harrowing ordeal to the patient. 4. There are occasional temporary and even permanent after-effects from the injected material.

Since, seemingly paradoxically, defective disks can be diagnosed and localized in over half the cases by simple x-ray films and in only one fourth of the cases by spinograms, and since all disks can be diagnosed by the history and neurologic examination and x-rays without contrast mediums, there is no possible reason for using spinal injections in any form. They just don't make sense.

Spinal tumors (now about 1 per cent) give the only real difficulty in differential diagnosis. The signs and symptoms of tumors may be identical with those of a disk, but one can frequently suspect a tumor by some progressive sensory or motor change (these also occur with disks) or by loss or diminution of a patellar reflex (this also occurs with disks). I have missed 9 tumors of the cauda equina among 1,100 disks; 8 of these I found later; the ninth was removed by another surgeon. On the other hand, I have diagnosed and removed 5 additional tumors among patients whose symptoms were somewhat similar to those of disks. Five more cases of metastatic tumors in the spine have been left untreated; usually the pain in metastatic lesions is continuous and not recurring. If a tumor is suspected, a lumbar puncture should be performed (this is the only occasion for tapping the spine). Xanthochromic fluid will usually indicate a tumor, and its absence a disk. A Queckenstedt test should be made at the same time in order to determine a partial or complete block in the spinal canal. These tests are not absolute (they were lacking in 1 case) but are nearly so.

Twenty patients having backache without sciatica have been operated on during the past three years. The history is much the same in all cases, i. e. recurring attacks of low backache and nothing more. Usually, but not always, the pain is intensified by coughing and sneezing. Each attack lasts one to three weeks, after which the patient is relatively free from pain until a new attack is precipitated by a strain such as a heavy lift, a twist of the back, a fall or any sudden movement. There may, however, be no definite precipitating cause. Sixteen patients were males, and 4 were females.

A total of 32 disks have been removed from the 20 patients; of these, 7 were large, protruding and nerve compressing, although there had never been sciatica. Twenty-five of the 32 disks were of the so-called concealed variety, i. e. too small to have been diagnosed by contrast mediums had any been used. In 6, or nearly one third, of these cases, the recurring backaches dated back more than ten years, i. e. ten, thirteen, fourteen, eighteen, twenty-five and thirty years; the shortest duration of attacks was two years.

When this study was begun I had been removing the entire disks but not so thoroughly as at the present time. However, I did not know that disks were so frequently multiple (80 per cent). Fair judgment on results of disk treatment can therefore be made only after this new information has been utilized. This date has been set at June 1, 1943, one year ago. Ten patients in this series were operated on before and 10 after this date. Of the 10 cases before June 1, 1943, single disks were

removed in all; in 2 cases a second disk was subsequently removed when symptoms continued, and, in 2 more, additional disks are believed to be present because of continued backache. Of the 10 cases in which operation has been performed since June 1, 1943, none have required reoperation. One patient has some backache but not severe enough for another operation, and a second has severe pain but has lost confidence and will not return for examination or operation. It is my belief that both these patients have a third disk. Recurrence of the disk is possible but unlikely. The remaining 8 cases are free from backache. This period of one year is much too short to warrant any conclusions concerning the permanence of results; but in over 800 cases of disks (with sciatica) removed completely in the past two years there have been only 2 known recurrences at the operated disks (both over a year ago) and 3 instances in which



Bony union between fourth and fifth vertebrae four years after partial extirpation of the disk.

sciatica has returned on the opposite side (but at the site of the previously removed disk). Return of pain on the opposite side must always be a possibility—because it is difficult or perhaps even impossible to elevate the spinal dura sufficiently to remove the cartilage in this corner of the disk completely. This could be avoided by opening the contralateral side, but with such a low percentage of trouble from this source I prefer, for the present at least, to accept this liability rather than increase the magnitude of the operation.

The preceding statement of results means actual recurrence of a disk demonstrated at operation. It does not mean recurrence of pain for which another disk has been found to be responsible. There have been perhaps a dozen of these. Nor does this statement imply that a higher percentage of recurrences will not appear subsequently. But considering the high percentage of actual recurrences that obtained when disks were only partially removed, no doubt can remain of the much improved results after their complete removal.

Sufficient time has not elapsed to justify a dogmatic statement that complete removal of disks will result in a permanent cure; but if the operation is properly done, I do not see how a permanent cure can fail. This is therefore not a statement of fact but an impression from experiences up to the present time. To remove a disk completely or essentially completely is a tedious and time consuming procedure (about an hour for 2 disks). Doubtless even the most careful operator will have recurrences because of an incomplete attack on the disk, but the recurrences should be few; and in the last analysis it will be the surgeon's mistake and not the mistake of the method. To speak of complete removal of disks is not strictly accurate; an absolute removal of all cartilage is impossible, but the small amount that remains on the fringes of the vertebrae gives no trouble. The removal is essentially complete.

An important view of defective disks is this: Should symptoms recur, either in exactly the same or a different form after three or four months, the explanation can be found and corrected. There are three possible causes of continuing trouble: (1) a recurrence of the original disk, (2) another disk which was missed at operation or (3) a tumor of the spinal cord or cauda equina (about 1 per cent). At operation it is possible by the mobility test to tell which of the first and second items is the cause and to correct it.

Much stress has been placed on a psychogenic factor or malingering in case of continuing pains before and after operation. These are always possible factors both in the preoperative diagnosis and in the postoperative failure to cure. However, there should be little difficulty in interpreting these elements either before or after operation. A psychoneurotic backache is nearly always continuous and therefore does not have the remissions that are so characteristic of defective disks. And patients of this type will not volunteer that coughing and sneezing accentuate the backache or sciatica. Finally, and most important, the psychoneurotic element is evidenced by spreading of the pain up the back and to the arm and even to the head. Such extensions can have no organic explanation. As a matter of fact, I have found psychoneuroses to be uncommon factors; and, when present they are easily differentiated from the real. With few exceptions the patient is right when symptoms continue and the doctor's explanation of a functional background is wrong.

When a disk is defective, whether concealed or protruding, the joint is more movable than normal, and by pushing the spinous processes caudally with an instrument the affected disk or disks can be identified by this increased mobility. The only failure of this test occurs when there is a narrowing of the intervertebral space in the x-ray film; the joint may then be immobile or nearly so. This test is as effective in localizing the disks causing a backache without sciatica. In a single case in this group the disk was at the second lumbar vertebra, but local tenderness and x-ray findings indicated its higher location.

TYPE OF OPERATIVE TREATMENT

The treatment of defective disks is precisely the same for backache alone as for backache plus sciatica. The mere removal of the protruding portion of a disk is unsatisfactory in the long run because a high percentage—at least a third and, with additional time, probably more—will recur from the cartilage that remains, and

with concealed disks the protrusion is too small to be removed. The present operative attack on disks is to remove them as completely as possible with curets, baring the bone. The joint then narrows, and the cavity fills with connective tissue. This procedure does what nature attempts to do slowly over many years, as is evidenced by the narrowing in the x-ray appearance. Three months after complete excision of the disk the joint, when exposed at operation, is absolutely firm; this has been demonstrated repeatedly. It is believed that bony union will eventually ensue, but I have only a single case to warrant this supposition. Recently a patient was shown to have bony union after four years, as may be seen in the illustration, although at that time the disk was only partly removed. The complete removal of the disk causes no more immediate or late after-effects than the partial removal. There has as yet been no instance in which a joint has been known to become loose after healing. There is reason to believe that the permanent fixation of an excavated disk should be maintained precisely as after trauma causing fractures of the spine involving the disks.

THE CAUSE OF DEFECTIVE DISKS

The underlying cause of defective disks is an inherent weakness in the lower lumbar spine. A superimposed factor is trauma—such as a heavy lift or twist or bend of the back or a severe cough or sneeze—which may or may not be severe enough to be appreciated at the time. Specifically, the weakness of the spine is due to a shift in the direction of the planes of the lateral articulations between the last three lumbar vertebrae and the sacrum, particularly between the fourth and fifth vertebrae and the sacrum. At the first two lumbar vertebrae the lateral joints parallel the spinous processes; at the third lumbar the plane of the joint turns laterally 15 to 25 degrees; at the fourth it turns out 25 to 45 degrees, and at the junction between the fifth and the sacrum the joint may be everted as much as 90 degrees from the spinous processes. At four, and particularly at five, the joint may also be turned upward and face in varying degrees a craniocaudal direction. Many disks are flat or nearly so, instead of vertical, and this leads to the frequency of spondylolisthesis, especially at the lumbosacral angle. There are varying degrees of these changes in the joints and much asymmetry in the two sides. The purpose of the shifting articulations is doubtless to provide movement—flexion, extension and rotation in the back. At the same time they create definite weakness of the spine and allow any undue trauma, even very slight, to loosen the joint or joints; this weakness then transfers increasing trauma to the corresponding disk or disks. This structural variation also accounts for the high frequency of multiple disks.

CONCERNING CONCEALED DISKS

There can never be any disagreement concerning protruding disks. Surgeons have been reluctant to accept the so-called concealed disks, i. e. small disks that do not elevate the nerve, which I believe to be just as easily diagnosed and localized and treated as the large ones; and they are three fourths of the total number. Just as one can diagnose a small tumor of the breast as unequivocally as a large one, so the diagnosis of a small disk is just as definite as a large one. There is nearly always some actual protrusion; it fluctuates when pressed on by forceps; the overlying ligament is much more opaque than the normal; it is adherent to

the surrounding structures, and when opened the forceps dip without resistance into a cavity and frequently sequestrums of varying size can be extracted. The location of the disk, whether small or large, is disclosed by the excess movement of the joint (the mobility test), except as previously noted, when the x-rays disclose a narrowing of the intervertebral space. The small concealed disks give precisely the same symptoms as the large ones, the only difference being the intensity and persistence of the symptoms—backache with or without sciatica. When sciatica is persistent and intense the disk will always be large and protruding, but a large disk may be present without intense symptoms, as in some of the cases here reported. By the symptoms one can usually predict the size of the disk. The treatment of small disks is precisely the same as of the large ones and is just as effective. Those who doubt concealed disks can never doubt the demonstrable increased mobility at the joint, which is the real source of symptoms; a loose joint must cause symptoms.

THE CAUSE OF BACKACHE AND SCIATICA

The cause of backache and sciatica cannot be stated with certainty. From a study of cases before and after operation, I now believe that the lateral joints and the corresponding disks are all participants and that probably the initial pain is from movement of the lateral facets and that the disk is secondarily and necessarily affected. The anatomic variation of the lower lumbar lateral facets, which is surely the cause of defective disks, suggests this. If the lateral facets are loose, the disk itself, which bears most of the weight of the spinal column, will participate in the increased mobility; thus all three joints are affected. Since at times the backache is unilateral, the lateral facet of one side is probably responsible for the backache; the mobile disk could hardly produce unilateral backache. A more obvious reason for believing that the loose facets cause the backache and sciatica as well is the postoperative story of an occasional patient after complete removal of the disk. In 3 patients an attack of severe backache and sciatica was precipitated immediately after they had got out of bed seven to ten days after operation. The attacks were identical with those before operation, but after the subsidence of symptoms a week or two later there was never a return of the symptoms. It can hardly be doubted that the lateral facets had slipped with the sudden application of weight, there being no disk to modify the strain. Certainly, the complete absence of the disk would eliminate protrusion of the disk as the factor in the sciatica. Therefore the sciatica, at least, must be referable to the lateral facets and probably was due to the swelling about these joints or possibly even to the actual slipping of the joint against the nerve.

Another reason for this explanation of the sciatica and backache is that in spondylolisthesis, in which the symptoms are identical, defective disks, either protruding or concealed, are not always present. Therefore it must be assumed that an explanation other than a disk must obtain—probably the slipped facets.

If this explanation is correct, it can be applied to the causation of backache and sciatica in the presence of concealed disks. It is difficult to explain sciatica on the finding of small disks that do not protrude against the nerve. It might be assumed that the disk, which is small at operation and probably even more reduced in size by the ventral position of the patient, might protrude inter-

mittently, especially under the influence of trauma, and then compress the nerve. The fact that the disk is usually adherent to the nerve or the dura or both also suggests that there has been preexisting pressure on the nerve. This explanation may or may not be satisfactory, but proof is lacking. It was my original explanation of sciatica before realizing that the lateral joints could probably cause it. Unless or until a disk actually compresses the nerve, it is more reasonable to assume that the lateral facets are responsible for the sciatica. How much of the backache is due to the lateral facets and how much to the disk itself can only be conjectured; both may play a part. The problem of defective disks, therefore, is one not only of the disk but of all three joints between the vertebrae; but always the disk is defective.

WHY REMOVE DISKS COMPLETELY?

If the lateral facets are responsible for much, at least, of the backache and pain, one may well ask Why attack the disks instead of the facets? The first answer is that the disk is probably always affected; the second, that stabilization of the facets by operation is difficult or at the present time, at least, impossible; the third, that the removal of the disk stabilizes the vertebral column by an actual fusion of the vertebrae, after which the facets take care of themselves. The disks offer a broad surface for fusion; the lateral facets are curved and small. In several instances I have opened the lateral joints and to some degree denuded the cartilage, but the total area involved is small and offers only a fraction of the stabilization offered by removal of the disk; even as a supplementary procedure it is probably of no practical value because fusion after extirpation of the disk is extensive and adequate. From an experience with 30 cases of reexplored disks (for recurrence of pain and before disks were known to be multiple) it is now known that the union between the vertebrae is so firm three months after a disk has been completely removed that there is no movement at the joint. If there is movement at the joint after this time the disk had not been completely removed and is therefore recurrent. And it is also known from exposures after an interval of a year that the joint remains solid; and from absence of symptoms after two and a half years there is no reason to believe that the healed space has changed in this respect.

WHY ARE FUSIONS (BONE TRANSPLANTS) OF THE SPINE TO BE CONDEMNED?

Most neurosurgeons still fuse a varying percentage of the cases in which disks are removed. The reason for this is that their experience with the operative treatment of disks has been unsatisfactory. The reasons for unsatisfactory results have been stated, i. e. (1) failure to remove the disks completely, thus obviating recurrence, and (2) the failure to recognize multiple disks. The use of bone grafts to the spine is therefore a confession of poor results. A fusion operation will improve the situation but little, if any, because the recurrent disk or the additional disk is merely covered up. After complete removal of disks the fusion of the spinal column is more nearly perfect than the most successful bone graft can be, and at the same time the cause is removed. Fusion by bone grafts is a big procedure and necessitates a prolonged stay in the hospital in a cast; fusion by removing the disks means hospitalization for only a week to ten days. I have

reoperated on perhaps 15 patients who have had spinal grafts performed—all without relief of symptoms—and only 3 of the grafts persisted in position and afforded any stabilization of the spine; even these did not even modify the pain. It can be said unequivocally that in the treatment of ruptured disks a spinal fusion by bone grafts is never necessary and cannot be too strongly condemned.

Since removal of intervertebral disks appears to be a more rational method of stabilization of the spine, I have in the past year performed operations in 25 cases of spondylolisthesis of the lesser grades and 5 cases of congenitally defective vertebrae by extirpating the disk, instead of by spinal fusions.

CONCLUSIONS

1. Recurring attacks of low lumbar backache without sciatica have precisely the same underlying cause as backaches plus sciatica, i. e. defective intervertebral disks.
2. In one third of the 20 cases here reported there were large protruding disks compressing the nerve, despite the fact that sciatica had never been present.
3. The diagnosis of defective disks is made solely from the history, the neurologic examination (frequently negative) and x-ray examinations of the spine. The latter give pathognomonic evidence of defective disks in over 50 per cent of the cases.
4. The disks are localized at operation by the mobility test (movement of the affected joint).
5. Defective disks are multiple in 80 per cent of the cases, with or without sciatica.
6. All spinal injections for diagnosis or localization are unnecessary; they are painful, sometimes cause serious after-effects and at best make the diagnosis and localization in only 25 per cent of the cases, whereas over 98 per cent can be diagnosed and localized without them. Even simple x-ray films alone diagnose more than 50 per cent. Spinal injections of any type should be strongly condemned.
7. Recurrence of disks should be reduced to a minimum by their complete removal. This results in fusion between the affected vertebrae and obviates any necessity for fusion by spinal grafts: Fusions of the spine are never necessary! If backache or sciatica returns or persists there are three possible explanations: 1. A disk has been missed. 2. It has been incompletely removed. 3. There may be a tumor.

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Dermatology in Early Modern Europe.—At the beginning of the seventeenth century came the discovery of the microscope, which opened up the universe of the infinitely little, as the telescope did the universe around us. During this period medicine kept the pace; it carried its studies as far as could be done without the instruments of precision of the nineteenth century. Anatomy, physiology, pathology and clinical medicine were investigated to the limit of the resources of existing scientific knowledge. Medicine had a particular reason for the stimulation of its activity in the sudden appearance of syphilis at the very beginning of this period. The study of skin diseases was more than ever a subject of major interest in medicine, because of the cutaneous manifestations of syphilis, which emphasized the importance of skin diseases. The history of dermatology during the period is that of rapid increase in knowledge through the investigations of men, many of whom are the great figures in early modern medicine.—Pusey, William Allen: *The History of Dermatology*, Springfield, Ill., Charles C Thomas, 1933.

LACTIC ACID: A CORROSIVE POISON

REPORT OF THREE FATAL CASES WITH
EXPERIMENTAL CONFIRMATIONE. GORDON YOUNG, Ph.D., F.R.S.C.
ANDRALPH P. SMITH, M.D., D.P.H.
HALIFAX, N. S.

The common occurrence and physiologic role of lactic acid have tended to establish the general opinion that this substance is not to be considered as poisonous. Lactic acid is not mentioned in any of the standard textbooks on toxicology. We have been able to find only one reference to it as a cause of death in a human being. Leschke¹ cites a case described by Fühner² of a woman aged 27 who died in twelve hours after the administration by duodenal tube of 100 cc. of a 33 per cent aqueous solution of lactic acid in error for magnesium sulfate. This resulted in dyspnea, vomiting of blood and mucus, a rapid feeble pulse, hemoglobinuria and cyanosis. The autopsy revealed a dark red patch of erosion in the duodenum. Both duodenum and jejunum showed hemorrhagic infiltration of all coats and necrosing inflammation. Leschke remarks that "lactic acid has a corrosive action exactly like that of any other acid of corresponding hydrogen ion concentration." The dissociation constant of lactic acid (K_a) is usually given as 1.38×10^{-4} at 25 C.³ This makes it comparable with formic acid at 2.14×10^{-4} , long considered a poisonous corrosive and almost ten times stronger than acetic acid, which has also been so classified when in high concentration.

From the experimental point of view there is confirmatory evidence. Dreyfus⁴ has shown that the rectal administration of 40 cc. of a 3 per cent solution of acetic, butyric, lactic or tartaric acids to rabbits caused death in a few hours. Pike, Osnato and Notkin⁵ injected lactic acid in doses of 0.07 to 0.1 Gm. per pound of body weight into cats to produce convulsions, which were later followed by death with respiratory failure and pneumatorrhaxia. Lastly, Fürth and Engel⁶ found that lactic acid given orally to rabbits in doses of 0.6 to 1.6 Gm. per kilogram of body weight caused death, and they quote Parnas as showing that 2.8 to 3.6 Gm. per kilogram could be given intravenously. They state that mice can withstand about the same dosage as rabbits but that rats are more resistant. In rats and mice alkalosis induced by sodium bicarbonate did not alter the effect.

Recently we were called on to investigate the cause of death of 3 premature infants. They were all being fed the same lactic acid milk mixture on the basis of

the following formulas, and all ingredients had been used previously for the same purpose: (1) evaporated milk, water and acid sugar solution, equal parts; (2) acid sugar solution: water, 1 pint, corn syrup, 1 tablespoon, lactic acid (concentrated) 1 teaspoon.

REPORT OF CASES

CASE 1.—Clinical History.—Baby H., a very small white girl aged 35 days, weighing 3.85 pounds (1,746 Gm.), was found dying three quarters of an hour after receiving the lactic acid milk mixture by gavage. She was one month premature and weighed 3.38 pounds (1,533 Gm.) at birth.

Autopsy Findings.—The autopsy was performed within a few hours of death.

General Appearances: There were no excoriations on the face, mouth or lips.

Lungs: The right upper lobe showed minute peribronchial hemorrhages with pus exuding from the bronchioles. Microscopic examination revealed this to be a typical capillary bronchitis. Areas of emphysema, atelectasis and acute congestion were also present in the lung. The left lung showed only a little acute congestion.

Esophagus: There was a small black necrotic, eroded area at the cardiac end, extending into the stomach, which was confirmed histologically.

Heart: The heart was normal except for some cloudy swelling of the myocardium and a little terminal dilatation of the right side.

Peritoneal Sac: The peritoneal sac contained some blackish fluid stomach contents.

Stomach: This had perforated, and its blackish, mucous contents had exuded. Its wall was black, hemorrhagic, necrotic and extremely friable and the seat of an acute gangrenous gastritis.

Intestine: Except for a slight injection of the jejunum, the intestine showed no gross or microscopic change. The contents were not blood stained.

Mesentery and Omentum: These showed white necrotic areas on a black gangrenous background.

Pancreas: Gross examination revealed some blackening and superficial necrosis externally, but only some congestion was visible on microscopic examination.

Liver: There were areas of superficial hemorrhage and acute congestion with cloudy swelling of the liver cells, confirmed histologically. The under aspect of the left lobe was blackened from the action of sulfide.

Spleen: It was very soft, toxic and congested.

Adrenals: Except for some superficial discoloration of the left gland, they were normal.

Kidneys: The kidneys showed cloudy swelling and some congestion of the glomeruli but no nephritis.

Comment: The capillary bronchitis present in the right lung would appear to have been present before the poisoning in view of the short time which elapsed between the feeding with the lactic acid milk mixture and death.

Pathologic Diagnosis: Acute gangrenous gastritis, a result of corrosive poisoning; capillary bronchitis of the right lung; toxemia.

CASE 2.—Clinical History.—Baby C., a small white girl aged 37 days and weighing 4.33 pounds (1,965 Gm.), was found in a collapsed, pale, distressed condition with a feeble rapid pulse. She died three and one-fourth hours after receiving the lactic acid milk mixture by gavage. Although two months premature, she was otherwise healthy and weighed 3.63 pounds (1,581 Gm.) at birth. Oxygen and carbon dioxide were given without avail.

Autopsy Findings.—The postmortem examination was performed within four hours of death.

General Appearances: No excoriations were visible on the face, lips or mouth.

From the Departments of Biochemistry and Pathology, Dalhousie University.

Dr. F. V. Woodbury, medical coroner, referred the cases to us. Mr. F. A. H. Rice assisted with some of the experiments. Dr. G. B. Wiswell supplied the clinical data.

1. Leschke, E.: *Clinical Toxicology*, Baltimore, William Wood & Company, 1934, p. 270.

2. Fühner, H.: *Milchsäurevergiftung*, in *Sammlung von Vergiftungsfällen*, Berlin, F. C. W. Vogel, 1932, vol. 3, A-208, pp. 71-74.

3. Heilbron, I. M., and others: *Dictionary of Organic Compounds*, London, Eyre & Spottiswoode, 1934-1936.

4. Dreyfus, L.: *De l'intoxication rectale par les acides*, *Compt. rend. Soc. de biol.* 82: 136-138, 1920.

5. Pike, F. H.; Osnato, M., and Notkin, J.: *The Combined Action of Some Convulsant Agents in Small Doses and the Action of Bromides in Experimentally Induced Convulsions*, *Arch. Neurol. & Psychiat.* 25: 1306-1314 (June) 1931.

6. Fürth, O., and Engel, P.: *Ueber die Assimilierbarkeit und Toxizität razemischer Milchsäure*, *Biochem. Ztschr.* 229: 381-396, 1930.

Lungs: Both lungs showed acute congestion and there were some petechiae in the upper lobes. No evidence of pneumonic change, either gross or microscopic, was detected.

Heart: Except for one small petechial hemorrhage on its surface near the base of the left ventricle and some cloudy swelling in the myocardium, the heart was otherwise normal.

Peritoneal Sac: It contained some blackish stomach contents.

Esophagus and Stomach: There was a black gangrenous area in the esophagus $\frac{1}{2}$ inch from the cardiac end of the stomach. The whole wall of the stomach was black and extremely friable and exhibited an intensely acute gangrenous gastritis with a small area of early erosion and perforation.

Intestine: The duodenum, jejunum and ileum all showed an acute enteritis, but the large bowel was relatively free, with nothing abnormal in the sigmoid or rectum.

Mesentery of the Small Intestine and Omentum: White necrotic areas were visible on a black gangrenous background.

Mesenteric Lymph Nodes: They were somewhat enlarged from a simple acute lymphadenitis.

Liver: The liver showed pronounced cloudy swelling and acute congestion.

Spleen: It was very soft, congested and toxic.

Kidneys: Both kidneys were the seat of cloudy swelling and acute congestion, and some petechial hemorrhages were seen at the upper pole of the left. No nephritis was present.

Pathologic Diagnosis: Acute gangrenous gastritis with perforation and acute enterocolitis, suggestive of corrosive poisoning; toxemia.

CASE 3.—Clinical History.—Baby M., a small white boy aged 17 days and weighing 4.16 pounds (1,887 Gm.), was under observation for a longer time than the 2 previous infants as fifteen and one-half hours had elapsed between the feeding of the lactic acid milk mixture by gavage and death. The baby was born at seven and one-half months of term and was thus six weeks premature. The birth weight was 3.81 pounds (1,728 Gm.).

The main symptoms were those of pallor, collapse and a feeble, rapid pulse. There were no convulsions or vomiting, and no staining of the diapers was noted, such as would have been expected with a hemoglobinuria. Up to the time of the onset of the symptoms of poisoning the infant was healthy and progressing favorably. Nikethamide and vitamin K were given without result.

Autopsy Findings.—The autopsy was performed two hours after death.

General Appearances: There were no excoriations of the face, lips or mouth.

Lungs: The lungs showed only acute congestion and some petechial hemorrhages. No signs of capillary bronchitis or of pneumonia were present.

Heart: The myocardium showed cloudy swelling, but there was no other abnormal change seen.

Esophagus: The last 2 inches of its lower end were necrotic and gangrenous.

Stomach: As in the previous cases, the wall was blackened and hemorrhagic and was the seat of an acute hemorrhagic and gangrenous gastritis. No perforation, however, had occurred. The contents had a black color.

Intestine: Both the small and the large intestine were inflamed and the seat of an acute enterocolitis which extended down to the sigmoid colon.

Mesenteric Glands: They were enlarged and showed an acute lymphadenitis.

Liver: There was a pronounced cloudy swelling, fatty degeneration and acute congestion with small scattered areas of hemorrhage. Although a slight increase in the cells in the portal tract areas was visible, no true toxic necrosis could be identified on microscopic examination.

Spleen: It was slightly enlarged, soft, toxic and intensely congested, with hemorrhagic areas through the pulp.

Kidneys: Both showed considerable cloudy swelling with some necrosis of the secreting tubules, diffuse congestion of the blood vessels and some generalized swelling of the glomeruli, with congestion of their capillaries. The condition present had the character of an acute catarrhal nephritis or nephrosis. No accumulations of hemoglobin were visible in the collecting tubules.

Urinary Bladder: This was normal and contained practically no urine.

Pathologic Diagnosis: Acute gangrenous gastritis and acute enterocolitis with acute nephrosis or catarrhal nephritis, a result of corrosive poisoning; toxemia.

CASE 4.—The same lactic acid milk mixture was also given by bottle to a 10 day old full term infant, but after one mouthful, which caused choking and reddening of the face, the baby spit it out and refused to take more.

Dr. Wiswell informs us that the baby developed an infected throat and suffered from a little bronchial irritation with wheezing for a day or two but made a complete recovery. Refusal to take the mixture evidently was the means of saving its life.

CHEMICAL EXAMINATION

Unfortunately, the acid milk mixture fed to the babies was thrown away immediately after the first death was discovered and was therefore not available for analysis. Furthermore, the amount of the mixture taken by the babies was not exactly known, but it was probably about 1 ounce. The various ingredients were, however, examined qualitatively and the hydrogen ion concentration determined either colorimetrically or electrometrically by a Beckman p_H meter. All conformed to their labeled contents. The corn syrup was acid, with p_H at 4.63, and the evaporated milk at p_H 6.7. The lactic acid possessed a specific gravity of 1.2, corresponding to the U. S. P. syrupy variety at 85 per cent with a p_H less than 1.

The stomach contents, together with peritoneal fluid, from case 1 measured 25 cc. of a dark brown mucous liquid without curds and with a slightly sour odor. The p_H was 2.5. The p_H of the stomach contents in case 2 was 3.0 and in case 3 about 5. A determination of the content of lactic acid in the stomach contents in case 1 was carried out according to the technic of clarification of Gerty T. Cori⁷ and of estimation of Friedmann and Kendall⁸ with the apparatus of West.⁹ The concentration was 0.19 per cent lactic acid, or a total of 41 mg. in the whole specimen.

EXPERIMENTS WITH RABBITS

The experimental feeding of the milk mixture with an increased amount of lactic acid was next tried on adult rabbits. The formula used was made up of equal parts of the original evaporated milk, water and the concentrated lactic acid (85 per cent). This mixture was rather disagreeably acid to taste and had a p_H of 2.1. It was 34 per cent (w/v) lactic acid. The casein curd which formed initially dissolved as the hydrogen ion concentration passed to the acid side of the iso-electric point.

RABBIT 1.—One ounce, i. e. approximately the amount of the feeding estimated by the nurse, of this mixture was given by stomach tube to a 6 pound rabbit which had not been fed for about twelve hours. The animal was soon obviously distressed,

7. Cori, C. F.: The Influence of Insulin and Epinephrine on the Lactic Acid Content of Blood and Tissues, *J. Biol. Chem.* **63**: 253-268, 1925.

8. Friedmann, T. E., and Kendall, A. I.: The Determination of Lactic Acid, *J. Biol. Chem.* **82**: 23-43, 1929.

9. West, E. S.: An Improved Lactic Acid Apparatus, *J. Biol. Chem.* **92**: 483-485, 1931.

and the respiration became labored at 64 per minute in one hour. The rabbit died suddenly in convulsions within two hours. There was no vomiting, defecation or urination throughout the period. This would indicate death following a dose of 10.2 Gm., or about 1.7 Gm. per kilogram, i. e. 0.77 Gm. per pound for this rabbit. This dosage is of the same order of magnitude as the minimum lethal dose recorded by Furth and Engel⁶ at 0.6 to 1.6 Gm. per kilogram. At autopsy the stomach was found greatly distended with fluid containing mucus, blood and much fecal material. The fundic portion of the wall was very thin and near to perforation. The mucosa showed an intense, hemorrhagic, almost gangrenous, acute gastritis. The duodenum was soft and congested, and the rest of the small intestine was essentially empty. The jejunum showed some hemorrhages into its mucosa in the upper portion. The spleen was congested, rather soft and toxic, with some hemorrhages into the pulp. The kidney showed only some congestion and cloudy swelling. The lungs were edematous, congested and hemorrhagic but showed no evidence of capillary bronchitis or bronchopneumonia. The urine was scanty (2.5 cc.), very turbid with amorphous phosphates and distinctly alkaline (pH 8.8). There was no protein or sugar present. The pathologic diagnosis of cause of death was acute hemorrhagic gastroenteritis. This is a striking confirmation of the suspected cause of death of the 3 babies, as the clinical and pathologic pictures were so similar.

RABBIT 2.—Another animal, weighing 5 pounds, was fed by stomach tube 30 cc. of a mixture of 2 parts whole milk to 1 part lactic acid (U. S. P. 85 per cent). This solution had a pH of 1.58. The rabbit had been starved for sixteen hours previously. It was our purpose to study the effect on the alkali reserve of the blood in this animal and to determine the rate of absorption of the lactic acid. The respiratory rate was very rapid throughout most of the period, beginning at 150 per minute, rising to 240 in one hour and falling to about 200 until shortly before death, when the deep, slow Kussmaul respiration set in. The animal died in convulsions six hours after the administration of the lactic acid.

The alkali reserve of the blood was measured periodically in the Van Slyke apparatus¹⁰ on oxalated plasma. Prior to the experiment it was 44 volumes of carbon dioxide per hundred cubic centimeters of plasma. At thirty minutes it was 38, and just prior to death 33.

The findings at autopsy performed immediately after death were essentially as recorded previously. The stomach contained 144 Gm. of a semifluid brownish mass with some characteristic fecal pellets. It had a slightly sour odor. The pH was 3.30. The concentration of lactic acid was 1.91 per cent (w/v) and the total in the stomach contents was 2.75 Gm. As the amount originally administered was 10.1 Gm., there thus remained only 27.5 per cent unabsorbed after about six hours. This figure is in agreement with the determinations of Cori¹¹ on the rate of absorption of 12 to 15 per cent sodium lactate from the intestine of the rat. She found 25.8 per cent absorbed in the first hour, 44.9 per cent in the second, 59.1 per cent in the third and 69.7 per cent in the fourth. Our figure was 72.5 per cent in six hours. The concentration of lactic acid in the original solution, from which the feeding mixture was prepared, was determined after boiling for thirty minutes with excess of normal sodium hydroxide to hydrolyze the lactone and titrating the excess with normal hydrochloric acid. The concentration was 84.2 per cent.

RABBIT 3.—A similar experiment was carried out with another rabbit, except that the animal was allowed to swallow about 20 cc. of the acid milk mixture naturally. Measurement of the alkali reserve showed values of 67 at the start of the experiment, 38 after three hours and 43 after eight hours. The animal died during the following night, in approximately forty hours.

RABBIT 4.—A similar experiment on another animal fed 30 cc. of the acid milk mixture by stomach tube resulted in death with convulsions in ten minutes. There was no vomiting, but a blood stained froth was visible at the external nares and the lungs were noticeably edematous. In this case the stomach was so eroded that it ruptured on removal from the abdominal cavity. There were about 100 cc. of contents present.

COMMENT

From these observations and experiments it would seem obvious that lactic acid must be considered as a corrosive poison. The explanation of the deaths of the 3 babies is probably to be found in the administration of an acid milk mixture containing too high a concentration of lactic acid. This resulted in hemorrhage and erosion of the gastric and duodenal mucosa such that death resulted in toxemia from severe gastroenteritis. The interval prior to death was forty-five minutes in case 1, three and one-fourth hours in case 2 and fifteen and one-half hours in case 3. The rabbits died in ten minutes, two hours, six hours and about forty hours after identical doses. From the experiments with rabbits it does not appear as if the resulting acidemia was a major factor. That it has an effect, however, is apparent from the reduction in the alkali reserve of the blood. This aspect has been studied by Cohen,¹² who showed that intravenous injection of lactic acid at 0.045 Gm. per kilogram caused increased respiratory rhythm both in rate and amplitude but that the response was not specific for lactic acid. Rodler¹³ has also shown that lactic acid milk containing 6 Gm. per liter tended to produce an acidosis as measured by increased urinary acidity and decreased excretion of phosphate.

In comparison with the recognized toxicology of acetic acid it is not surprising that lactic acid, a much stronger acid, should also be considered as a corrosive poison. Due care should therefore be exercised in the labeling and dispensing of this reagent so commonly used in the feeding of infants.

SUMMARY

The deaths of 3 premature infants have been investigated, both pathologically and chemically, and found to be due to an acute hemorrhagic and gangrenous gastritis. The deaths occurred in 0.75, 4.25 and 15.5 hours following the administration of an acid milk mixture containing an excess of lactic acid. The 2 babies who were larger and lived longer also showed an acute enterocolitis, and the 1 who lived for 15.5 hours had, in addition, an acute catarrhal nephritis or nephrosis.

After administration by mouth of a lactic acid milk mixture containing 10.1 Gm. in 30 cc. to rabbits, death followed in ten minutes and two, six and forty hours in 4 animals. The symptoms and findings were identical with those of the infants and death was attributed to acute hemorrhagic gastritis. There was a moderate degree of acidosis.

Lactic acid must therefore be regarded as a corrosive poison, and due care must be exercised in its use as an infant food.

Department of Biochemistry, Dalhousie University.

10. Hawk, P. B., and Bergeim, O.: *Practical Physiological Chemistry*, ed. 11, Philadelphia, P. Blakiston's Son & Co., 1937, pp. 499-503.

11. Cori, G. T.: *Studies on Intestinal Absorption: I. The Absorption of Lactic Acid*, *J. Biol. Chem.* 87: 13-18, 1930

12. Cohen, S. J.: *The Effect of Lactic Acid on the Respiratory Center*, *J. Pharmacol. & Exper. Therap.* 11: 221-228, 1918.

13. Rodler, E.: *Ueber die Beeinflussung des Saurebasenhaushalts beim Säugling durch die Verfütterung von Milchsäure- und Zitronensäuremilch*, *Ann. paediat.* 153: 209-221, 1939.

TYPICAL PARACHUTE INJURIES

A STUDY OF THOSE OCCURRING IN 250,000 JUMPS
AT THE PARACHUTE SCHOOLMAJOR C. DONALD LORD
ANDLIEUTENANT COLONEL JAMES W. COUTTS
MEDICAL CORPS, ARMY OF THE UNITED STATES

Parachute jumps at the Parachute School have increased progressively from their inception in 1941 to the time of this writing. Parachute injuries at the Parachute School have proportionately decreased progressively until at the present time a "jumper" has roughly only 1 per cent chance of being injured in any way in any one parachute descent. This remarkable increase in parachute activities, in spite of the decrease in injury rate, establishes a wealth of clinical material for study. This clinical material has been used in preparing this report.

Certain types of training injuries and jumping fractures have occurred repeatedly until there now exist several clinical entities recognized as typical parachute injuries. These will be discussed subsequently.

In this report we have analyzed the material at hand according to:

1. The type of injury most common to each of the four training stages and the anatomy, physiology and, where possible, the mechanics involved in producing the injury.
2. The immediate and follow-up care of the injured provided at the Parachute School.
3. New training technics and apparatus accounting for the diminishing injury rate.
4. New selection methods employed in choosing parachute personnel.

An "injury" has been arbitrarily chosen as a condition directly resulting from training which causes the student to lose one day or more from duty. Minor sprains, lacerations, contusions or exhaustive states which can be rehabilitated at the Parachute Medical Unit and returned to duty within a few hours are not considered statistically as "injuries."

The parachute course of training consists of four stages briefly described here for the purpose of orientation:

STAGE A.—Calisthenics, rope climbing, running and jumping from low 4 to 6 foot platforms into sawdust pits.

STAGE B.—Tumbling, trainasium, landing trainer, jumps from mock doors (4 to 6 feet), jumps from mock towers (30 to 35 feet) and suspended harness drill.

STAGE C.—Daily jumping from the 250 foot towers (free and controlled) and landing by parachute on sawdust. Tumbling is reviewed and parachute control is practiced.

STAGE D.—In which the applicant makes the necessary number of plane jumps to qualify as a parachutist, the jumps being made from a plane in flight and the landing being made on level and uneven terrain.

The physical hardening accomplished through stage A training put most applicants at something near physical perfection. It has been found that men physically

at their best are less prone to develop fear phenomena in the apparatus of the next three stages.

The right rectus muscle strain or tear has proved to be the most frequent cause of disability in stage A training and the most interesting clinically, since it closely simulates acute appendicitis. This occurs in rope climbing, presumably when the lower extremities are raised at right angles to the body and the legs grasp the rope, as shown in figure 1.

It is believed that in the attempt to reach the top of the rope an unusually strong effort is made, in some cases causing a definite sharp pain in the abdomen and resulting in the following clinical syndrome. The patient appears at the Parachute Medical Unit complaining of pain in the abdomen and walking slightly flexed at the hips. The simple process of getting on the examining table is difficult because of the pain. With the patient standing, the abdomen appears relaxed, there being no effort to "hold the abdomen in." In cases with hematoma formation a definite bulge can be seen along the course of the rectus muscle. Inspection further reveals some subcutaneous ecchymosis

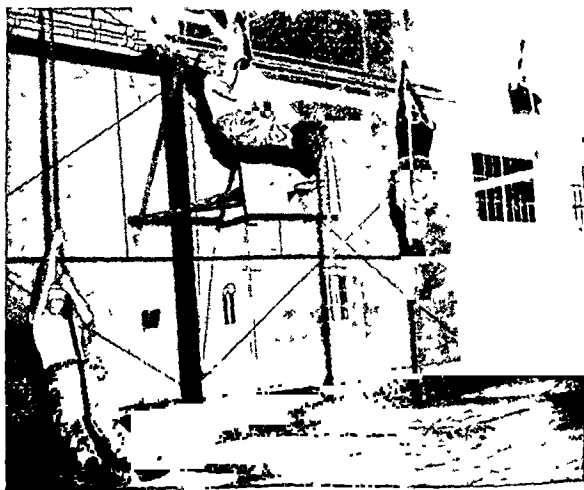


Fig. 1.—Mechanism of right rectus muscle strain, or tear.

(after four to seven days have elapsed) extending downward from the point of maximum tenderness. The muscle is exquisitely tender on light palpation, and the patient resists any sort of deep pressure. When asked to raise the body from the prone position, keeping the lower extremities flat on the table, he experiences severe pain. Ninety per cent of these cases are in the right rectus and 10 per cent in the left. It is believed that this is due to the effort exerted being greater on the right side in the majority of cases. A white blood count of 9,000 to 11,000 occurs the day after the injury. Polymorphonuclear leukocytes range from 70 per cent to 80 per cent. Now that the cause is determined, the diagnosis can be readily made, but many have been hospitalized for observation for appendicitis. One patient was operated on. The wound was closed and the appendix not removed. A hematoma below the rectus was found.

Since the act of tumbling has proved effective in disseminating the shock of landing when contact is made with the ground, the proper technic of tumbling is drilled into the applicant over and over again daily until a smooth, properly executed tumble automatically follows contact with the ground from any height. This

Figures quoted were obtained from the official records of the Parachute School.

Acknowledgment is made of the active cooperation of the X Ray and Orthopedic Services at Station Hospital, Fort Benning, Georgia.

Major Lord is Surgeon and Lieutenant Colonel Coutts is Assistant Commandant at the Parachute School. Both authors are qualified parachutists.

The photographs were reproduced through the courtesy of the Post Signal Photo Laboratory, Fort Benning, Georgia, and Base Photographic Section, Lawson Field, Georgia.

emphasis on tumbling leads to the typical injury of stage B, the acromioclavicular contusion and the acromioclavicular separation. Figures 2 and 3 show two training situations involving tumbles which are being properly executed.



Fig. 2.—Tumbling from the landing trainer. Arrow indicates point of most forcible contact with ground. If improperly executed, the point of the shoulder strikes with greatest force, resulting in acromioclavicular injury.

The shoulder tip should not touch the ground; the forearm held rigidly by the triceps acts as a bar over which the body rolls. When the triceps muscles are relaxed the shoulder comes in direct contact with the ground at point X, indicated by the arrow, and the acromioclavicular injury occurs. Separation of the acromioclavicular joint in these injuries involves only the tearing of the articular capsule in some cases, the coracoclavicular ligaments remaining intact, preventing the scapula and acromion from being displaced downward. In the more severe cases the capsule and the coracoclavicular ligaments are torn and the acromion, being completely separated from the clavicle, is displaced downward by the weight of the upper extremity. In figure 4 the acromioclavicular separation is pronounced but the scapula and acromion are depressed only slightly.



Fig. 3.—This illustrates in greater detail the mechanism of acromioclavicular injury.

In this case it was felt that the coracoclavicular ligaments were stretched but maintained the connection to the clavicle. This patient was treated with a block in the axilla strapped to the body; an additional strap extended up over the lateral end of the clavicle over the shoulder and down posteriorly attaching to the

block behind the axilla. The elbow was raised by means of a sling. The man returned to full jump duty after five months and has now qualified as a parachutist with no symptoms referable to the shoulder. The less severe injury, namely the simple acromioclavicular separation with slight, if any, tearing of the capsule responds to immobilization of the upper arm and shoulder for two to four weeks. Those patients are ready for full parachute duty in this length of time without any treatment other than physical therapy and rest.

In stages C and D the injuries have a common cause, namely landing via parachute. The injuries, while more frequent in stage D, involve the same mechanism and the two will be described together. There are two typical parachute leg injuries. The first typical parachute injury resulting from a parachute jump is the double fracture involving the lower third of the fibula and the posterior lip of the tibia. The mechanism of this fracture is explained on the basis of a double force. It is thought that the foot is rotated externally and forced posteriorly on contact with the ground when this fracture occurs. When the foot is rotated externally, the anterior portion of the body of the talus (astragalus) presses against the anterior border of the inner



Fig. 4.—Typical acromioclavicular separation.

surface of the external malleolus, forcing it outward and backward. If the force is sufficient and if the inferior tibiofibular ligament remains intact, this force tends to cause an oblique fracture of the lower end of the fibula, usually about 2 inches above the tip. The posterior force is the result of the forward motion of the foot as it strikes the ground. The impact is transmitted up the metatarsals, through the tarsus, forcing off the posterior tibial lip. In the presence of a ground wind and with oscillation at the time of landing a more violent eversion of the ankle may occur, resulting in the trimalleolar fracture described by Lewin¹ in his study of the foot and ankle. In these cases fracture of the internal and external malleoli and the posterior tibial lip occurs. This trimalleolar fracture, however, is considerably less frequent than that involving the fibula and posterior tibial lip alone.

Figure 5 shows the foot and leg position and landing attitude as the parachutist approaches the ground. Figure 6 shows a fracture of the ankle involving not only the usual lower end of the fibula and posterior tibial lip but also the internal malleolus, which occurs in the more violent eversions of the ankle with landing.

These fractures were common prior to some recent changes in landing attitudes. The "original parachute

1. Lewin, Philip. *The Foot and Ankle*, ed. 2, Philadelphia, Lea & Febiger, 1941.

fracture" has recently begun to be replaced by a fracture of the upper third of the fibula or dislocation of the fibular head. This is due to the greater support of the ankle by having both feet held firmly together at the moment of striking the ground. However, coin-

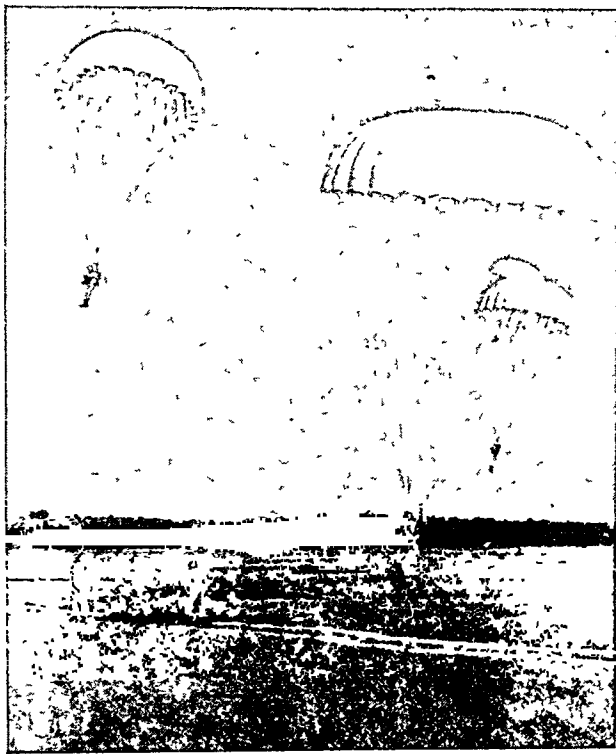


Fig 5.—Parachutists in descent. Preparation for contact with ground has been properly made.

cident with this decrease in this fracture there has been an increase in fractures of the upper third of the fibula and also in dislocation of the fibular head. Since the latter situation is simpler to handle surgically, and since the convalescent time is substantially less, this is considered a favorable change.

This second "typical parachute injury" we have called the "silent fracture," since frequently the upper third of the fibula will be fractured and the patient will exhibit few, if any, symptoms. It is not unusual that the fracture will occur in stage C and the soldier proceed with the actual plane jumps of stage D before reporting for medical care. Figure 7 shows a fractured fibula occurring on Friday of one week and being reported at the medical unit on Tuesday of the next week with "a little" pain. It is our belief that a fracture of the upper third of the fibula could very frequently be misdiagnosed as a strained muscle if the possibility of this "silent" fracture should not be kept in mind.

Such a relatively painless pathologic condition can undoubtedly occur only because the fibula does not enter into weight bearing. In a series of 35 cases diagnosed recently, only 10 were reported for treatment at the time of the fracture. The other 25 were reported for "slight pain" in the upper outer aspect of the leg seven to thirty days after the injury. Many showed definite callus formation at the original x-ray examination. It is felt that some cases of fractured upper third of the fibula are never diagnosed as fractures. They have become more frequent in our series as the lower fibula fractures decrease with the ankle support afforded by landing with the feet and ankles held firmly together.

Dislocations of the fibular head have occurred now in a small series of cases but are becoming more frequent as the ankle injuries diminish in frequency. Figure 8 shows the fibular head in a dislocated position.

It is felt that the sideward landings which occur in oscillations result in a tendency to "spring" the fibular head from its position or fracture it in the upper third.

Key and Conwell² mention the possibility of backward, forward, outward or upward dislocation of the fibular head. The dislocations of the fibular head occurring in the parachute landings are primarily lateral dislocations resulting from the "springing" action described. The attachment of the tendon of the biceps femoris would tend to dislocate it posteriorly and upward, but we have not seen this happen in our series. The diagnosis is not difficult, since the bone is subcutaneous and can be readily palpated. These dislocations are sometimes reduced on the jump field by the ambulance surgeon or at the parachute medical unit after x-ray examination. The procedure is strong inversion of the foot and direct pressure over the fibular head. An elastic bandage is applied and the patient put on crutches and kept ambulatory. We have seen no evidence of peroneal nerve involvement yet. One medical officer in parachute training having a dislocated fibular head reported a numbness of the foot lasting several days after the accident. There was no tendency to muscle weakness "or foot drop." We are of the opinion that the relations of the peroneal nerve to the fibular head are such that with slight or moderate dislocation of the fibular head no pressure is exerted on the nerve. Furthermore, reduction is accomplished very early in these cases, and if pressure on the nerve does occur it is relieved promptly.

These two clinical syndromes, one involving the ankle, the other involving the upper fibula, are showing signs of persistence of occurrence with thousands of jumps weekly and are now considered classic parachute entities.

With the opening shock of the parachute while the soldier is falling freely, any type of fracture or injury may occur if the body position is incorrect. The most unusual, recently, was a deep laceration of the perineum extending from the scrotum to and involving the sphincter ani and extending deeply, exposing the lower segment of the rectum. This was caused by the parachutist doing a forward somersault in the air with his legs apart before the parachute opened. The suspen-



Fig 6.—Typical parachute ankle fracture, involving both tibia and fibula

2. Key, J. A. and Conwell, H. E.: *The Management of Fractures, Dislocations and Sprains*, ed 3, St. Louis, C. V. Mosby Company, 1942.

sion lines went between his legs. When the parachute opened in the propeller blast, the great force of the taut suspension lines was exerted on the perineum, causing the deep laceration described. When the body position is normal, this great opening force is directed to the

body harness from the suspension lines. It is thought that this accident occurred because the parachutist "dived" rather than "jumped" from the plane in flight and because he neglected to keep his feet and legs together at the exit. Such cases are rare but are of great clinical interest because they show the hazards involved when the "rules" are not followed.

IMMEDIATE AND FOLLOW-UP PROVISIONS FOR CARE OF THE INJURED AT THE PARACHUTE SCHOOL

Fractures, discussed in this article, are seen long before swelling has time to occur, be-

Fig. 7—So-called silent parachute fracture of upper fibula. The term "silent fracture" has been coined to indicate the relatively painless nature of this fracture

cause of the preparedness which exists in the Parachute School for immediate handling of injuries. Frequently fractures can be palpated by the examining physician before the obscuring action of edema has intervened.

Injuries occurring in stages A, B and C are picked up by the ambulance from the Parachute Medical Unit within a few minutes from the time of the injury. Jumping injuries occurring in stage D are handled as follows: On the jumping field there is an aid man assigned to watch the descent of every parachutist. He is within 6 feet of the parachutist when the latter lands. If there is any evidence whatever of injury, the aid man unfolds his red flag. Two ambulances and doctors are assigned daily to the field. One responds immediately to a waving red flag. The diagnosis is made within a matter of two minutes, as a rule, from the time of injury. The injured member is splinted and transported to the Parachute Medical Unit, where x-ray films are taken. Wherever possible, if no fracture exists, ambulatory treatment is encouraged. Men with fractures are admitted to the hospital; men with sprains, regardless of their severity, contusions, and the like, are supplied with crutches and kept mobile.

On two occasions the Parachute Medical Unit has conducted a series of studies to determine the advisability of injecting procaine hydrochloride for sprains. The immediate relief of discomfort by this method cannot be disputed. However, with early icing, tight binders and the use of crutches for twenty-four hours the pain is not a troublesome problem. It is believed that procaine injection has definite value in chosen cases with severe pain or for those who must walk imme-

diately. The great majority, however, are not injected with procaine in our present method of treatment. The length of disability is not shortened by procaine injection in our series. This may be due to the fact that almost complete healing is required before a soldier is permitted to return to jumping status.

In the first twenty-four hours tight bands, icing and immobilization constitute the treatment of preference. After the first twenty-four hours warm applications, gentle massage and early active motion is the course followed. The physical therapy department in the Parachute Medical Unit handles hundreds of men daily, using infra-red lamps, ultraviolet rays, whirlpool baths, alternating hot and cold baths, and massage.

NEW TRAINING TECHNICS AND APPARATUS ACCOUNTING FOR THE DIMINISHING INJURY RATE

It is believed that certain revisions of the landing method taught at the Parachute School are in some measure responsible for a distinctly diminishing injury rate. This decrease was accomplished in spite of an increase in the training load of the Parachute School since July 1943. A revision of technic entailed:

1. Landing with the feet together, legs bent slightly at the knees, and the weight of the body slightly forward over the feet. Legs are held so that the knees are together. The muscles are not tensed, yet not relaxed. The leg muscles are alert to take up the landing shock.

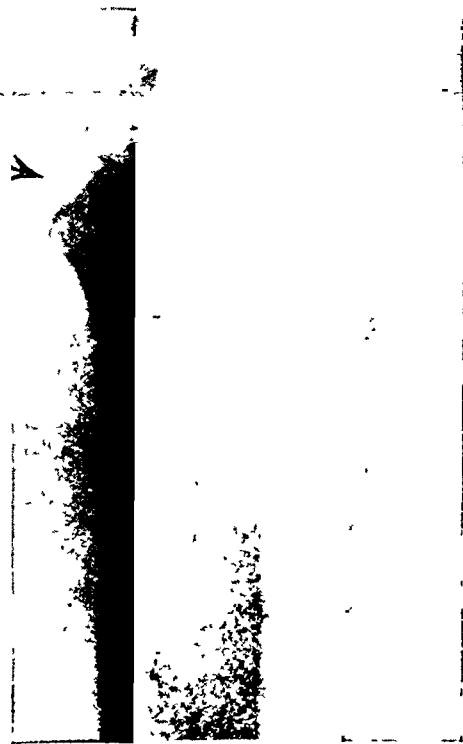


Fig. 8—Typical dislocation of fibular head. Here, as in the "silent fracture," one notes a minimum of symptoms, which are infrequent.

2. A variation of previously taught tumbling technic so that proper landing can be made during ground approaches that are angular to the line of drift during a parachute descent. It was discovered that, although the desired approach was a forward drift then landing (fig. 5) in a large percentage of instances, backward or oblique landings occurred.

Further diminution of the injury rate was accomplished by exacting supervision of each student during this period of training before entering stage D. Careful attention to the maintenance of all equipment and training aids was found also to have some value.

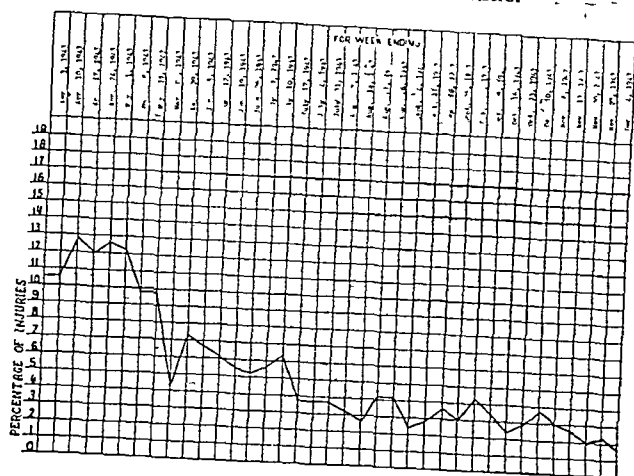


Fig. 9.—Graphic representation of the fact that all injuries in both the jumping and the prejumping stage have been materially decreased. Weekly percentage includes injuries in all four stages of training.

A study of the parachutists in figures 3 and 5 shows the value of the training the candidate receives in stages A, B and C. Figure 5 indicates lessons in landing technic that were properly learned. In the early days of parachute training when the student load on the school was small, the assistant commandant was able to select the most favorable weather when jumping his novices for qualification. However, when it became necessary for the Parachute School to produce material increase in its output it became increasingly difficult to pick ideal jumping weather for the novice. The directive to "qualify the men" made it impossible to limit their jumping to ideal weather conditions as in the past. The decreased injury percentage appears all the more remarkable in view of these conditions.

Strong ground winds frequently set up a pendulum-like motion of the parachutist, in which the apex of the parachute is the fixed, and the parachutist himself the moving, end of the pendulum. This swinging motion, or oscillation, as it is termed, can materially reduce the parachutist's opportunity of making an uninjured landing. When the old method of landing was taught, the novice's feet were approximately the width of the hips apart when landing. It is apparent that a sideward oscillation would bring the landing shock of all the body's weight on one or the other foot. This increased the possibility of sprain or fracture. The new method of landing, i. e. with the feet together, distributes the landing shock with almost perfect equality to both feet and legs when coming in for an oscillating landing. Careful records maintained at the Medical Unit, the Parachute School, covering thousands of injuries, have permitted the preparation of the chart presented as figure 9.

The new method of landing was inaugurated in stage A on June 12, 1943. It will be noted that since that time there has been a decided decline in the combined weekly injury percentage. This average was not subjected to the violent fluctuations which had previously characterized it. Comparison of the 1943 seasonal averages with those of 1942 reveals that in each case the combined percentage is lower.

SELECTION METHODS EMPLOYED IN CHOOSING PARACHUTE PERSONNEL

The selection of parachute personnel is done with the utmost care. All incoming applicants to the school have first been examined by their unit medical officer, who is supplied with a copy of the physical requirements for parachute admission. This serves as a gross screening process in weeding out obviously poor material. On admission to the receiving battalion at the Parachute School, all men are subjected to an examination system at the Parachute Medical Unit which rules out anatomically and psychologically poor material. The men are passed through a series of rooms and individually examined from a psychiatric point of view with stress being laid on various phobias for the detection of any lack of desire for training of this severity. They then proceed through the various stages of the physical examination, with particular stress being placed on anything which is symptomatic at the time, such as old lumbosacral sprains, old painful fractures, old retracting scars and any history of symptoms referable to the head, such as dizziness, blackouts or fainting spells. Potential hernias are ruled out for fear of exaggeration while in training. All men with heart murmurs, unless they can be definitely proved to be functional, are ruled out. All men with questionable visual acuity without glasses are ruled out unless their vision is 20/40 or better bilaterally. Venereal disease disqualifies a man on the original examination. If venereal disease is contracted during the course of training, the soldier is immediately removed from parachute training and disqualified. The syphilitic patient who has had what is considered adequate treatment and whose blood and spinal fluid serologic reaction is negative is acceptable. These are not considered cases of active venereal disease. The elimination of these conditions results in between 10 and 15 per cent rejections of all applicants to the Parachute School reaching Fort Benning for training.

Further selection is accomplished through the observations of the stage leaders in noting hesitancy or actual inability to perform some of the preliminary low jumping procedures.



Fig. 10.—Parachutists in various stages of exit from plane. It is at this moment that occasional "freak" accidents occur.

Such selection standards result in the acceptance of the best men available. We are convinced that men physically perfect are less prone to injury in training than those with any physical impairment and therefore accredit some of the diminishing injury rate to the increasing severity of selection standards.

Four typical physical injuries are summarized. These are parachute entities, proved by their repeated occurrence in soldiers taking this course. Their frequency, it is felt, has been much reduced in the past six months, and those occurring now are recognized as incidental to the production of qualified parachutists.

CONCLUSIONS

1. This survey covers parachute descents at the Parachute School in excess of 250,000.
2. Statistically, any parachutist has only 1 per cent chance of injury in any one parachute descent, and this figure is decreasing.
3. Some typical medical parachute entities are now established: (a) right rectus muscle strain, (b) acromioclavicular contusions and separations, (c) fracture of the lower third of the fibula associated with fracture of the posterior tibial lip and (d) the "silent fracture" of the upper third of the fibula—and less frequently a dislocation of the fibular head. The fibula can be fractured in its upper third and be relatively asymptomatic; hence the designation "silent fracture."
4. Holding the feet together on contact with the ground, replacing the old method of holding the feet 18 inches apart on landing, has considerably reduced ankle fractures.

Clinical Notes, Suggestions and New Instruments

HEMANGIOMA OF THE KIDNEY

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AND

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Hemangioma of the kidney is a rare disease. Bell¹ found only 1 instance of hemangioma of the kidney in 30,000 necropsies. In this case the tumor was situated in the substance of the kidney, had not eroded into the renal pelvis and therefore had not caused any symptoms. Judd and Simon² in 1928 were able to find only 11 cases of hemangioma of the kidney reported in the literature and added 1 case which they had observed. In 1941 Riley and Swann³ made a comprehensive review of the literature and were able to collect only 36 authentic cases. They added 1 case which they had observed. Since that time several cases have been reported,⁴ but not enough to justify another compilation of collected cases.

Two cases of hemangioma of the kidney have been observed at the Mayo Clinic. One of these cases has been reported by Judd and Simon.² The other case will be reported in this paper.

REPORT OF CASE

A man aged 33 was referred to the clinic on May 20, 1941 for routine examination for induction into the Army. He stated that he previously had passed blood in his urine. As urinalysis did not disclose any abnormality and as he had not passed bloody urine for several months, it was felt that he possibly might have essential hematuria.

From the Section on Urology, Mayo Clinic

1. Bell, E. T.: A Classification of Renal Tumors with Observations on the Frequency of the Various Types, *J. Urol.* 39: 238-243 (March) 1938.

2. Judd, E. S., and Simon, H. E.: Angioma of the Kidney, *Surg., Gynec. & Obst.* 46: 711-713 (May) 1928.

3. Riley, A., and Swann, W. J., Jr.: Angioma of Kidney, *Urol. & Cutan. Rev.* 45: 377-382 (June) 1941.

4. Dean, A. L., and McCarthy, W. D.: Hemangioma of the Kidney Associated with Multiple Hemangiomas, *Tr. Am. A. Genito-Urin. Surg.* 33: 1-9, 1941. McLean, E. H., and Matthews, T. J.: Hemangioma of the Kidney, *West. J. Surg.* 50: 47-50 (Jan.) 1942.

On April 6, 1943, approximately two years later, the patient was referred to the clinic by his family physician because of an attack of hematuria which had occurred two days previously.



Fig. 1.—Urogram showing failure of left kidney to excrete radiopaque dye.



Fig. 2.—Pyelogram made after injection of contrast medium into pelvis of the left kidney.

When the patient was 8 years of age his mother had noticed that his urine was bloody. At the age of 18 years he first had noticed that his urine was bloody. At that time the attack

of hematuria had been accompanied by dull aching pain in the left flank. The severity of the pain had increased when he passed blood clots. He had been advised to rest in bed for one month. He later had a similar attack in 1932 and again in 1940.

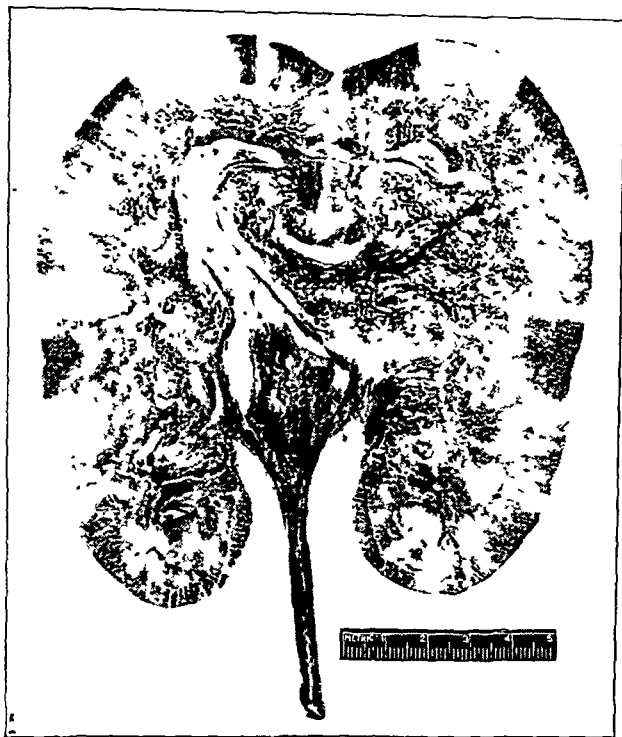


Fig 3—Gross appearance of involved kidney.

When the patient was examined at the clinic, gross examination disclosed that the urine was bloody and contained a few clots. Physical examination did not disclose any abnormality. Microscopic examination of the urine revealed hematuria grade 3 (on the basis of 1 to 4) and an occasional pus corpuscle in each microscopic field as viewed under the high power objective. The concentration of hemoglobin was 13.5 Gm. per hundred cubic centimeters of blood. The erythrocyte count was 4,820,000 and the leukocyte count was 6,400 per cubic millimeter respectively. The value for the urea was 40 mg. per hundred cubic centimeters of blood. A serologic test for syphilis was negative, and roentgenographic examination of the thorax did not disclose any abnormality.

Excretory urography revealed that the right kidney probably was normal (fig. 1) although visualization of the contrast medium was indistinct. The left kidney did not excrete any of the radiopaque dye. Retrograde pyelography disclosed obliteration of the middle calix of the left kidney and flaring of the upper and lower calices (fig. 2). It was believed that the patient probably had multiple cysts or a tumor of the left kidney.

On May 13, 1943 an exploratory operation was performed. A combination of spinal and intravenous anesthesia was employed. The left kidney was approached through the usual posterolumbar incision. Grossly the kidney appeared as though it had been the site of repeated infarction. Because of the persistent hematuria and the urographic findings, the kidney was removed.

The kidney measured 13 by 7.5 by 8 cm. and weighed 302 Gm. A diffuse cavernous hemangioma, which measured 9 by 5 by 6 cm., involved the pyramidal portion of the kidney and prolongations of the tumor extended through the cortex to the capsule (fig. 3).

Microscopic examination of the tumor revealed blood vessels and sinuses which varied in size (fig. 4). These were lined with flattened endothelium, and some of them contained erythrocytes and leukocytes.

The renal tissue adjacent to the tumor was the site of chronic inflammation.

Convalescence was uneventful, and the patient was dismissed from the hospital on the twelfth day after the operation.

COMMENT

Hemangioma of the kidney is a rare tumor and its etiologic importance in cases of essential hematuria is not to be emphasized; however, it may be the cause of bleeding of undetermined origin more often than one might suspect, but in the light of Bell's findings this is unlikely. It is, however, a lesion to be remembered in case of essential hematuria and there often is little evidence that one is dealing with such a tumor. Judd and Simon said that this type of tumor rarely was more than 2 cm. in diameter.



Fig 4.—Sections of hemangioma of kidney showing difference in size of sinuses and blood vessels ($\times 40$).

The symptoms of hemangioma of the kidney are hematuria, renal colic and the passage of clots. Frequently the bleeding is so profuse that an emergency nephrectomy is indicated. The treatment of this type of tumor consists in removal of the involved kidney.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, Secretary.

GUTH GERMICIDAL LAMP ACCEPTABLE

Manufacturer of Fixtures: Edwin F. Guth Company, 2615 Washington Avenue, St. Louis.

Manufacturer of Burners: General Electric Company, Lamp Division, Nela Park, Cleveland.

Edwin F. Guth Company presented the following apparatus for Council consideration: (1) the Guth Bracket Unit, (2) Guth Ceiling Unit, (3) Special type of Guth Bracket Unit, (4) Guth Baby-cubicle units and (5) Hospital Operating room unit, all of which are for permanent installation. The firm also submitted (6) floor unit, a standard and deluxe model and another fixture called the (7) "Guth Under-Bed Type," which irradiates the floor.

Clinical evidence submitted to the Council on Physical Medicine demonstrates that under properly controlled conditions the killing of air borne micro-organisms by ultraviolet rays may be used to

supplement other methods of disinfecting air for prevention of cross infection in contagious wards, in nurseries and for reducing air borne infection of wounds in hospital operating rooms. Council acceptance is limited to ultraviolet disinfecting lamps designed for installation in hospital nurseries, hospital wards and operating rooms.

The General Electric Germicidal Lamps manufactured by the General Electric Company, Lamp Department, Nela Park, Cleveland, have been mounted in fixtures manufactured by the Edwin F. Guth Company. The burner or source of ultraviolet radiation and the several fixtures have been examined by the Council. The characteristics as given for General Electric Germicidal Lamps are presented in the accompanying table.

Characteristics of the General Electric Germicidal Lamps

	G. E. Germicidal 30 Watt	G. E. Germicidal 15 Watt
Glass types	974 glass	974 glass
Lamp watts are ballast	30 + 10	15 + 5
Length in sockets	36 in.	18 in.
Milliwatts, 2,537 angstroms	9,000 10,500	3,600 4,200
Max. Int. Microwatts/cm ² 1 m.	100 117	40-46
Max. Int. Microwatts/cm ² 1 ft.	740 840	300 340
Lamp life hours, three hour operating interval	2,500	2,500
Lamp life hours, continuous operation	4,000	4,000

The ultraviolet radiation is confined almost entirely to the wavelength 2,537 angstroms. Fixtures should be designed and installed to insure little or no direct irradiation of the individuals in the rooms.

When first installed the radiant ultraviolet energy is considerably more intense than 20 microwatts per square centimeter at 1 meter, recognized by the Council as being the minimum intensity for acceptance. As the lamps age the intensity drops off rapidly at first and more slowly later on. Under ordinary usage the lamps maintain the acceptable minimum intensity or above for the guaranteed period of four thousand hours of continuous operation. If, however, the lamps fall below this intensity before the guaranteed period has elapsed, the firm will make an adjustment on a pro rata basis. Users of the equipment are advised to test the lamps each month to determine whether they are up to standard. Since the lamps burn at a characteristic color constantly there is no way of determining

whether they are emitting sufficient ultraviolet radiation except by testing them with an ultraviolet meter.

Satisfactory evidence is not available to warrant acceptance of ultraviolet lamps for disinfecting solids. To kill a micro-organism a direct hit by ultraviolet rays of sufficient intensity is required. This is difficult to accomplish on the edge of a drinking cup, for example, also in a liquid containing suspended matter or in air laden with dust particles that shield the organism. Ultraviolet radiation cannot penetrate deeply and hence may be absorbed by finger marks, saliva, cosmetics or other foreign matter on a drinking cup. In view of the present available evidence, ultraviolet radiation appears to be an uncertain means of sterilizing solid objects (drinking cups, combs, brushes, shaving utensils, toilet seats and shoes) even if irradiation of the whole surface is possible. Ultraviolet lamps for disinfecting purposes are not accepted for disinfecting air in schools, waiting rooms, public gathering places and large halls. The evidence now available does not indicate that the incidence of colds can be reduced by the installation of ultraviolet lamps or by the irradiation of an enclosure occupied by people.

The Council on Physical Medicine voted to accept the Guth Germicidal lamps for inclusion in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN E. SMITH, M.D., Secretary.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1944, p. 608).

The following dosage form has been accepted:

HORTON & CONVERSE, LOS ANGELES

Tablets Thiamine Hydrochloride: 1 mg.

SULFADIAZINE (See New and Nonofficial Remedies, 1944, p. 178).

The following dosage form has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Sulfadiazine (Powder): 120 Gm. and 453 Gm. packages.

SULFAMERAZINE (See THE JOURNAL, May 6, 1944, p. 31).

The following dosage form has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Sulfamerazine (Powder): 120 Gm. and 453 Gm. packages.

SULFANILAMIDE (See New and Nonofficial Remedies, 1944, p. 184).

The following dosage form has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Sulfanilamide (Powder): 120 Gm. and 453 Gm. packages.

SULFATHIAZOLE (See New and Nonofficial Remedies, 1944, p. 191).

The following dosage form has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Sulfathiazole (Powder): 120 Gm. and 453 Gm. packages.

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1944, p. 418).

The following dosage forms have been accepted:

WILLIAM R. WARNER & Co., INC., NEW YORK

Tablets Diethylstilbestrol: 0.1 mg. and 1 mg.

Ampuls Diethylstilbestrol (in oil), 1 mg. per cc.: 1 cc.

Diethylstilbestrol (in oil), 1 mg. per cc.: 10 cc. multiple dose serum capped vials, containing 0.5 per cent chlorobutanol.

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SATURDAY, AUGUST 26, 1944

THE PREVENTION OF CANCER

In a recent and interesting discussion¹ of preventive medicine occurs the statement:

Prompt and aggressive treatment—a purely curative process—takes on a strongly preventive coloring because it may forestall serious deterioration or death. This is true also of cancer, a nonpreventable disease of unknown cause which can nevertheless be cured in many instances by surgical removal or radiological destruction of the lesion. The full use of modern diagnostic facilities permits such intervention at a profitable stage in many cases of cancer which would otherwise go unrecognized until they were incurable. The gastrointestinal x-ray study which a careful diagnostician orders when confronted with certain abdominal symptoms is thus an important tool of preventive medicine.

Suffering and death from cancer are prevented by its cure and in that respect cancer is preventable. But the remark that cancer is a nonpreventable disease, presumably in the sense that its onset cannot be prevented, and of unknown cause is open to question.

The causes of cancer are by no means unknown. Experiments have demonstrated that a large number of substances can cause cancer. True, the exact mechanism of cancer causation is not understood. Neither do we understand just how the tubercle bacillus causes tuberculosis. Our knowledge of these and other more or less similar mechanisms is as yet mainly in the observational and descriptive stage.

There are many examples of cancer in man that arise under the influence of particular agents under such circumstances that there can be no doubt as to cause and effect. One of these is chimney sweeps' cancer of the skin, recognized by Percival Pott in 1775 as due to the action of soot, from which cancerigenic chemicals have been isolated in recent times. Other examples are mule spinners' cancer, due to mineral oil; cancer of the skin in tar workers; cancer of the lip in fishermen repairing tarred nets; cancer in workers with aniline dyes, and cancer in x-ray and in radium workers. In other cancers the causative condition is obvious but

the precise agent is not known. This is the case of cancer at a spot where the mucous membrane of the mouth has been rubbed by a ragged tooth or an ill fitting denture or at the spot on the cheek against which the quid of chewing tobacco has been held perhaps for years. In cattle cancer may arise at the root of the horns where the traction rope runs back and forth. In industries cancerigenic chemicals are used which on entrance into the bodies of workers may cause preventable cancer. The successful results of planned experiments could not be more convincing of the preventability of human cancer than these and other clinical examples. Generally speaking, the association of cancer with chronic inflammatory and irritating lesions—"pre-cancerous conditions"—is so close that their prevention and cure are regarded by physicians as all important measures toward the prevention of cancer. A movement is under way toward the establishment of clinics for cancer prevention. All the efforts to control cancer are based on the possibility of preventing its start as well as its advance.

JAUNDICE FOLLOWING VACCINATION AGAINST YELLOW FEVER

Jaundice occurring in army units stationed largely in this country and associated with vaccination against yellow fever received much publicity about two years ago. Now an exhaustive report has appeared of a study made by a research team appointed by the Surgeon General of the Army to investigate this problem.¹ The report deals with jaundice in army personnel in the western region of the United States and its relation to vaccination against yellow fever.

The greater part of the jaundice which was epidemic in army personnel in the western region of the United States from March to July 1942, it was found, was a hepatitis similar to the common so-called catarrhal jaundice or infectious hepatitis in its manifestations but related to the injection of certain lots of yellow fever vaccines from sixty to one hundred and fifty days before the attacks. The total number of reported cases of jaundice of the type under study in the western region as defined was 11,853, and the records of 10,284 were subjected to statistical analysis. In the latter group there were 31 fatalities, or a mortality rate of 3 per thousand cases. The absence of a noticeable increase in jaundice in navy personnel and in foreign countries where yellow fever vaccines from the same source were used was found to be due to the fact that definitely icterogenic lots of vaccine were not employed in either of those large groups. Although the exact nature of the icterogenic agent in the vaccine could

1. Sawyer, W. A.; Meyer, K. F.; Eaton, M. D.; Bauer, J. H.; Putnam, Persis, and Schwenker, F. F. Jaundice in Army Personnel in the Western Region of the United States and Its Relation to Vaccination Against Yellow Fever, *Am. J. Hyg.* 93: 337 (June), 10: 35 (July) 1944.

1. Smith, G., and Evans, L. J.: Preventive Medicine: An Attempt at a Definition, *Science* 100: 39 (July 21) 1944.

not be determined, the following possibilities were definitely ruled out: that it was due to the modified yellow fever virus in the vaccine, to insanitary conditions, to food or water, to contact with any chemical poison, to inoculation to prevent diseases other than yellow fever or to any local or environmental factor. The most plausible hypothesis as to the source and nature of the agent was that it had been introduced into the vaccine in human blood serums secured from presumably normal donors and that the agent was most probably an unknown filtrable virus capable of causing disease in man and occasionally of circulating subsequently in the blood during a prolonged carrier state. Unfortunately, extensive attempts to isolate the supposed virus agent were either completely negative or gave only suggestive results.

On April 13, 1942, as the result of its first investigations into the subject, the commission's principal recommendation to the Surgeon General of the Army was "That, as far as military exigencies permit, vaccination with lots with numbers over 330 be suspended for at least two months for the purpose of permitting the completion of the investigations in progress and allowing any delayed manifestations to appear and indicate whether later lots are safe. . . ." The final report of the investigative team included the important recommendation that only serum-free yellow fever vaccine be utilized in the immunization of military personnel against yellow fever. That this recommendation was a practical one is due to an extraordinary development: during the course of the investigation the two laboratories which had been preparing the vaccine in the United States devised methods to modify their technic so that human serum could be omitted from a still potent vaccine!

While the problem of jaundice following vaccination against yellow fever may have been completely solved by the removal of human serum from the vaccine, the result of transferring the icterogenic agent may be more difficult to eliminate in other serum-containing biologic products. All possible encouragement and assistance should therefore be given to research aiming to isolate the causative agent of postinoculation jaundice, devising methods for protection and of finding ways of excluding it from all of the serum-containing biologic products.

Prompt and intelligent action here served to place under rapid control an unanticipated complication resulting from the development of a new prophylactic procedure of enormous value. The entire handling of this unexpected mischance reflects great credit on the Office of the Surgeon General of the Army and on all those who took part in the investigations.

MENSTRUAL TOXIN

In 1940 the Smiths¹ of the Free Hospital for Women, Brookline, Mass., tested the toxicity of 37 normal menstrual discharges from parous women. These discharges were often highly toxic for rats. Thirty-five of the thirty-seven specimens produced death within forty-eight hours in 19 to 24 day old female rats, when given twice daily in doses varying from 0.01 to 0.8 cc. The two apparently nontoxic specimens were from the same donor and had been collected during the first day of the menstrual flow. Later specimens from the same donor killed rats in doses varying from 0.1 cc. to as little as 0.01 cc. The most constant lesions found at necropsy in these rats were diffuse or focal hemorrhages of the adrenal cortex with dissolution of cells in either or all zones. In rats that died, early hemorrhage was the only finding. Less constant necropsy findings were hemorrhagic and edematous lesions of the lungs, liver and kidneys, with blood occasionally found in the urinary bladder. With increased length of survival, dissolution to actual necrosis of the parenchymatous cells was also seen. There was usually a brawny induration at the site of the subcutaneous injection.

Male rats and spayed immature females are relatively unsusceptible to this toxin. The susceptibility of normal females varies with the estrous period. Females injected at the beginning of postestrus are most likely to survive. If each dose of the menstrual discharge is accompanied by a subcutaneous injection of 0.05 microgram of estradiol, female rats almost invariably die within forty-eight hours after the first injection, regardless of the time of the cycle. Female rats can be protected against a lethal dose of the toxin, or of the toxin plus estrogen, by preliminary or simultaneous administration of large amounts of progesterone.

Female rats may be immunized against several times the usual minimum lethal dose of the toxin by six biweekly subcutaneous injections of sublethal doses of the toxin, the resulting immunity persisting for at least four months. Mature female rabbits are also extremely susceptible to the discharge, one to three subcutaneous injections of 1 cc. of the menstrual discharge usually resulting in death within forty-eight hours. Rabbits, however, can be immunized by multiple sublethal doses. The serum from such rabbits contains specific precipitins for the toxin. Given in five 1 cc. doses two and a half days prior to the injection of the toxin, this antiserum will protect immature female rats against twice the usual minimum lethal dose of the toxin.

Subsequently these investigators² found that when the menstrual discharge is centrifuged a buffy coat or

1. Smith, O. W., and Smith, G. V. S.: *Proc. Soc. Exper. Biol. & Med.* 44: 100 (May) 1940.

2. Smith, O. W., and Smith, G. V. S.: *Proc. Soc. Exper. Biol. & Med.* 55: 285 (April) 1944.

middle layer of endometrial debris is formed between the serum and the sedimented red blood corpuscles. This layer is ten times more toxic than the supernatant serum. The sedimented blood cells are practically non-toxic. During the catamenial flow the toxicity of different samples varies in direct proportion to the amount of endometrial debris, suggesting that the menstrual toxin is an autolytic product of the decidua menstrualis. This theory is confirmed by repeated failures to produce a similar toxin by the aseptic autolysis of human venous blood or by disintegration of such blood after inoculation with menstrual flora.

After precipitation with one-third saturated ammonium sulfate the toxicity is most concentrated in the water insoluble portion (after dialysis) of the euglobulin precipitate. Further purification of the toxin is hampered by its lability. Partially purified toxin often loses most of its potency while being dried in a Flosdorf-Mudd apparatus. The best preparation thus far obtained was a grayish white powder, killing rats in doses equivalent to 0.75 cc. of menstrual serum. Even the fully dried precipitate rapidly deteriorates, losing three fourths of its toxicity within six weeks.

The nearest approach to the menstrual toxin thus far reported in biochemical literature is the toxic euglobulin in human inflammatory exudate recently described by Menkin,³ which he named "necrosin." Detailed studies of the relation of "necrosin" to the menstrual toxin are now in progress.

TICK TRANSMISSION OF ENCEPHALITIS

Since the St. Louis epidemic of 1933, many clinicians have assumed that epidemics of acute encephalitis are due to person-to-person droplet infection. The causative agent of the disease, however, has never been isolated from nasopharyngeal washings, and the seasonal variations and topographic distribution strongly suggest an insect vector. Following Syverton's¹ experimental transmission of western type equine encephalomyelitis by means of the wood tick, and the implication of several species of ticks by Soviet investigators,² Blattner and Heys³ of the Department of Pediatrics, Washington University School of Medicine, began a study of the relation of the St. Louis encephalitis virus to the common dog tick (*Dermacentor variabilis*).

The dog tick is relatively common in the environs of St. Louis and is readily reared under laboratory conditions. Adult females feeding on guinea pigs or hamsters require on an average four to six days for complete engorgement. Four days later eggs are laid. Within fifteen days at ordinary room temperature these

eggs develop into typical six legged larvae. Within ten days after an initial blood meal (white mice) the larvae metamorphose into eight legged nymphs. These in turn become eight legged adults in six to eight days after an additional feeding. A blood meal is required before each metamorphosis. If not fed, the tick enters a diapause or latent stage at any stage of development. Under optimum feeding conditions the life cycle may be as short as forty-five to fifty days but may be extended to two years or more under less favorable conditions. The ticks may survive a winter in any stage of development.

Tests with hamsters showed that the virus is present in the blood stream from six hours to seventy-two hours after intraperitoneal inoculation with St. Louis encephalitis. A similar transient viremia is noted in mice inoculated intracerebrally. Larvae, nymphs and adult ticks were allowed to feed on infected mice or hamsters during the viremic phase, after which they were transferred to normal white Swiss mice. In nine to fourteen days signs of illness were noted in the second host. With young mice the resulting tick borne infection was usually fatal. Older mice often recovered, eight to twelve weeks later their serums showing the presence of high titer antibodies against St. Louis encephalitis. Many convalescent adults would withstand as much as 10,000 minimum lethal doses of the St. Louis virus injected intracerebrally.

The virus is present in lethal concentration in the eggs of infected female dog ticks and in the larvae, nymphs and adult forms developing from these eggs. It is also present in lethal concentration in the eggs and all stages of development of the second generation. Although the tests have not yet extended beyond the second generation, it seems probable that the virus can be transmitted indefinitely in the progeny of an infected female tick. The virus can remain viable in infected eggs or in the bodies of hereditarily infected ticks which are kept dormant as long as ten months, by storage at 12.5 C.

The St. Louis pediatricians do not believe, however, that the dog tick is the vector responsible for the transmission of St. Louis encephalitis to man, since a history of tick bite was not recorded in the 1933 epidemic. They believe that the dog tick, feeding on birds and mammals, may play an important role in establishing and maintaining a reservoir of infection in nature, from which human beings may be infected by other blood sucking insects. Recent work by Hammon,⁴ Howitt⁵ and their associates has shown the natural occurrence of St. Louis encephalitis virus in *Culex tarsalis* and other species of mosquitoes, as well as of type specific

3. Menkin, Valy: *Science* **97**: 165 (Feb. 12) 1943.

1. Syverton, J. T., and Berry, G. P.: *J. Exper. Med.* **73**: 507, 1941.

2. New Development in Knowledge of Encephalitis, editorial, J. A. M. A. **117**: 1361 (Oct. 18) 1941; *Insect Borne Vaccine*, *ibid.* **119**: 797 (July 4) 1942.

3. Blattner, R. J., and Heys, F. M.: *Proc. Soc. Exper. Biol. & Med.* **48**: 707, 1941; *J. Exper. Med.* **79**: 439 (April) 1944.

4. Hammon, W. McD.; Reeves, W. C.; Brookman, B., and Izumi, E. M.: *J. Infect. Dis.* **70**: 263, 267, 273, 278, 1942; *J. Exper. Med.* **78**: 241, 1943.

5. Howitt, Beatrice F., and van Herick, William: *Proc. Soc. Exper. Biol. & Med.* **48**: 247, 1941; *J. Immunol.* **42**: 117, 1941; *Am. J. Pub. Health* **32**: 503, 1942.

antibodies in the blood of numerous species of mammals and birds. They have demonstrated experimental transmission of the St. Louis virus to birds by means of bites from nine species of infected mosquitoes.

The work of Blattner and Heys is the first successful transmission of St. Louis encephalitis to experimental animals by means of ticks and is thus a confirmation and extension of work recently reported by Soviet epidemiologists.²

Current Comment

POLIOMYELITIS VIRUS IN THE HUMAN OROPHARYNX

Emphasis on the presence of poliomyelitis virus in the feces has tended to retard attempts to isolate the virus from other human sources. Now Howe and his colleagues¹ report on the study of throat swabs taken from 14 cases of acute poliomyelitis during the first week of the disease. Instead of nasal or pharyngeal washings often formerly used, they employed cotton swabs rubbed against the posterior wall of the oropharynx and the peritonsillar area. The swab was then detached, dropped into a fluid tight container with 1 cc. of sterile water and stored on solidified carbon dioxide. The technic of inoculation was as follows: The throat swabs were washed out in phosphate buffer at p_H 8, the fluid being pressed out of the cotton in a syringe. The eluate was then brought to p_H 6 and treated with 20 per cent ether in the ice box until sterile (usually thirty-six hours), at which time the ether was removed. In no case was more than 1.1 cc. of inoculum obtained. Rhesus monkeys of 8 to 10 pounds were inoculated in each lateral thalamus under ether anesthesia. Of the 14 specimens tested (which were unselected from a larger series), 7 produced typical poliomyelitis in the test animals. Six of the 7 animals were paralytic. Microscopic sections showed characteristic lesions in each case. There seems little doubt that the infectious agent was present in the oropharynx and can be definitely transmitted by the technic described.

THE Rh FACTOR IN FEEBLEMINDEDNESS

The importance of the Rh factor in fetal erythroblastosis and in unfavorable reactions in transfusion under certain circumstances is well established. The Rh factor in the blood of a fetus where the father is Rh positive can lead to the production of antibodies in an Rh negative mother, which in turn can destroy red corpuscles in the fetus leading to fetal anemia and its consequences. Now a beginning has been made in the study of the possible relationship of the Rh factor to mental deficiency. Yannet and Lieberman found that, in the case of 53 children with mongolism, birth trauma and other specific types of feeble-mindedness, the distribution of the mothers as to Rh positive and Rh negative corresponded closely to the accepted normal

white average in the United States. In the case of 56 children with mental deficiencies of unclassified nature, however, 14 of the mothers were Rh negative, which is more than twice the average for the general population. Of these 14 Rh negative mothers 11 had Rh positive children. While the number of cases in this series is too small to have any statistical significance, further study on a much larger scale of the Rh factor in feeble-mindedness seems advisable. Commenting on the work of Yannet and Lieberman, Cook¹ points out that destruction of fetal blood cells by anti-Rh bodies in the blood of mothers may lead to serious injury to the fetal brain from anoxia, possibly also in other ways. In fetal erythroblastosis and icterus, degenerative changes in cerebral structures (kernicterus) may occur on a large scale. The idea that the Rh factor may play a role in feeble-mindedness turns the attention to the possibility of preventing its disastrous effects. It has been suggested that tests of the blood for anti-Rh agglutinins in pregnant Rh negative women may give warning of the danger of fetal erythroblastosis and thus facilitate appropriate treatment immediately after birth. Further developments of great interest in the understanding of the Rh factor and its effects are foreseen.

INSULIN REQUIREMENT OF MAN AFTER TOTAL PANCREATECTOMY

Complete removal of the pancreas in man should furnish evidence as to the basic insulin requirements: the greatest need should exist when insulin is not produced at all. The truth of this expectation has become a problem of increased clinical importance with the development of modern pancreatic surgery. Observations on two men after total pancreatectomy by Goldner and Clark¹ revealed unexpectedly small insulin requirements and great insulin sensitivity. Pancreatectomy in both cases was performed because of neoplastic growth. During the periods of observation the patients did not receive any nourishment by mouth but were given several blood transfusions and 100 to 150 Gm. of dextrose daily, intravenously, in the form of a 5 per cent solution. One patient also received infusions of casein hydrolysate. Urinalysis and blood sugar estimations were made at regular intervals. A solution of insulin zinc crystals was also added to the dextrose solution and thus entered the system slowly. The first patient excreted 1 to 2 Gm. of dextrose in a urinary volume of 1,500 to 2,000 cc. and the second patient was free at first, becoming anuric later. The first patient received four infusions of 1,000 cc. of 5 per cent dextrose solution within the first thirty-six hours. When the blood sugar had reached 292 mg. per hundred cubic centimeters, 20 units of insulin without dextrose was given. Six hours later a severe hypoglycemic reaction occurred and the blood sugar had dropped to 14 mg. per hundred cubic centimeters. Intravenous injection of 50 Gm. of dextrose resulted in the return of the

1. Cook, R.: The Rh Gene as a Cause of Mental Deficiency, *J. Heredity* 35: 133 (May) 1944.

1. Goldner, Martin G., and Clark, Dwight E.: The Insulin Requirement of Man After Total Pancreatectomy, *J. Clin. Endocrinol.* 4: 194 (May) 1944.

1. Howe, Howard A., and others: Poliomyelitis Virus in the Human Oropharynx, *Proc. Soc. Exper. Biol. & Med.* 56: 171 (June) 1944.

blood sugar level to normal, 127 mg. per hundred cubic centimeters. Insulin was not added to the venoclyses until forty-eight hours later, when the blood sugar had reached 410 mg. per hundred cubic centimeters. The administration of insulin was then resumed, with 5 units. The doses were increased gradually to 10, 15 and 20 units, and no insulin was given without simultaneous dextrose infusion. On this management it was found possible to maintain the blood sugar between 90 and 200 mg. per hundred cubic centimeters and to avoid further hypoglycemic reactions. Thus the daily insulin requirement was only about 50 units on a dextrose intake of 150 to 200 Gm. The course of blood sugar and relation between insulin and hypoglycemia were roughly the same in the second patient. It can be concluded that the depancreatized man requires less insulin and is more sensitive to insulin than many diabetic patients. The question consequently arises as to whether in the causation of diabetes not only lack of insulin but also an insulin inhibiting mechanism may play a part. The line of investigation suggested may throw new significance on the etiology of human diabetes mellitus.

THE NATIONAL FORMULARY MOVES FORWARD

The National Formulary is recognized as an official compendium of certain selected drugs and preparations for the United States. Now the National Formulary is undergoing changes which will effect much improvement. Over 190 drugs, nearly one third of the monographs in N. F. VII, are tentatively slated for deletion from N. F. VIII. Included in these deletions are many preparations that have been obsolete for many years and which at best could never be called truly effective therapeutic agents. Another progressive step is the adoption of English titles in preference to Latin. This change will be hailed by teachers, students and practitioners. Further, the metric system is now used in N. F. monographs, except that doses are given in metric and apothecary systems. The proposed list of additions for N. F. VIII contains a few agents not generally held necessary, but the bulk represent a trend that is most commendable. The National Formulary, United States Pharmacopeia and New and Nonofficial Remedies should be available to every physician.

DANGER OF RABIES INCREASING

Throughout the country the reported increase of rabies in dogs is a cause of mounting concern. Control measures have been instituted in many areas, including parts of southern California, eighteen Michigan counties, St. Louis, the environs of Baltimore and Newport, Ky. Reports from Indiana and the Bronx indicate an increase in the number of rabid dogs and of persons bitten by rabid dogs. If still more serious outbreaks are to be forestalled, such well known preventive measures as muzzling, incarceration and destruction of stray animals, and restraining of all owned dogs by leash will doubtless have to be undertaken in many other communities.

EPIDEMIC OF RINGWORM OF THE SCALP IN NEW YORK CITY

An epidemic of tinea capitis in New York City caused by *Microsporon audouini* and involving several thousand children has been reported as spreading for more than a year. Tinea capitis has become more frequent in many other large cities; an epidemic status, however, is a unique situation for this country. Epidemics of ringworm of the scalp were known in France, where infected children were sent to separate schools. A committee appointed by the Association of Dermatosyphilologists of Greater New York,¹ to study this problem suggests the following as possible causes of this epidemic: 1. Decreased maternal care and supervision because mothers are employed in factories and offices. 2. Countrywide change of residence of members of the armed forces and war workers. Infected children are moved from place to place, traveling with their parents to new locales. 3. Overcrowding in children's institutions and a rapid turnover in these institutions. Inefficient supervision, partly because of lack of personnel and equipment. Infected children may have been known to be discharged to their homes from state institutions. 4. Possibility of spread of the infection through the medium of barber shops and moving picture houses, the backs of subway seats, and other inanimate contacts. Infected hairs have been found in an East Harlem moving picture house. There is no evidence of increased pathogenicity of *M. audouini* from limited animal experimentation and tests with trichophytin. The first diagnostic center to study the extent of the infection, to assist in diagnosis and to advise practitioners was established in the Astoria health district, where an unusual number of children with infected scalps was reported. All children attending school were examined under filtered ultraviolet rays (Wood light). Infected children were treated with x-rays. After the patient was considered cured by the clinic or doctor, two consecutive negative examinations by the diagnostic center, a week apart, were required before the child could return to school. Based on the Astoria demonstration, the committee made the following recommendations for the control of the epidemic in New York City: 1. Case finding: Tinea capitis should be made a reportable disease; as a preliminary step to control, it is essential to make a citywide case finding survey of all school children, using filtered ultraviolet rays; the case finding survey should be reported every three months; when cases are found, a district diagnostic center should be set up. 2. Education of the public: The public should be reached through the press, from pamphlets and by the radio. 3. Institutions. It is recommended that citywide, complete and periodic inspection of children who are in institutions be made by qualified physicians. Infections caused by *Microsporon audouini* should promptly receive the benefit of x-ray therapy. Local measures are usually ineffective. Communities free of the disease should take active steps to prevent the disease or to localize any nidus that appears.

1. Lewis, George M.; Silvers, Seymour H.; Cipollaro, Anthony C.; Muskatblit, Emanuel, and Mitchell, Harold H. Measures to Prevent and Control an Epidemic of Ringworm of the Scalp, New York State J. Med. 44: 1237 (June 15) 1944.

MEDICINE AND THE WAR

ARMY

HEALTH IN PACIFIC AREAS

[The following is a letter received by Major General Norman T. Kirk from the Honorable Nelson Trusler Johnson, Minister to Australia.]

THE FOREIGN SERVICE OF THE UNITED STATES OF AMERICA AMERICAN LEGATION

Canberra, Australia
June 7, 1944.

Dear General:

I have just returned from a trip in the Pacific areas where American forces are established and working, except for the combat areas. The work which our army medical services have done is so remarkable and so amazingly successful that I felt that I must sit down to write and tell you this.

Certainly these are impossible areas for a white man to live and work in, but I did not see or hear a mosquito the whole time I was there and the records of the various commands and the hospitals show that, through the efficiency of the control planned and carried out in all of these areas, amazing things have been accomplished so that malaria is no longer the threat to success of our mission in this area of war.

I wish I could mention by name all of the officers and men connected with this service I met and saw working, because it is a tribute to each and every one of these men, from the highest to the lowest, that such amazing things have been accomplished in so short a time in a country where, at the beginning of the campaign, it really looked as though the malarial mosquito was going to lick us even before the Japanese got to us.

With kindest regards, I am

Sincerely yours,
NELSON TRUSLER JOHNSON,
Envoy Extraordinary and Minister
Plenipotentiary to Australia.

Major General N. T. Kirk,
Surgeon General,
Army Medical Center,
Washington, D. C.

PLANS IN PROGRESS FOR ARMY MEDICAL HISTORY

At a meeting of representatives of the professional and administrative services of the Office of the Surgeon General, held in Washington, July 26, plans were discussed and progress reports made on the medical history of the war. Work on the history has been in progress since August 1941 under the direction of Col. Albert G. Love, who was a member of the editorial staff that published the history of the Medical Department of the United States Army in World War I. Editors have been selected for the volumes on the medical specialties and the administrative phases of the medical service. In addition to the research and editorial work to be done in the Office of the Surgeon General, historical activities will be carried forward by officers assigned to headquarters of overseas theaters. They will secure first hand reports of the overall medical services, particularly those rendered under combat conditions including evacuation of the wounded, the flow of supplies and other problems. Officers in overseas theaters who have had extensive experience with medical and surgical problems peculiar to this war are being asked to record their observations for the history.

When first organized, historical activities of the Medical Department relative to professional subjects were part of a joint

plan to be undertaken in cooperation with the Subcommittee on Historical Records of the Division of Medical Sciences of the National Research Council. The administrative and organizational volumes were to be prepared by the Medical Department. This plan, however, was modified recently in accordance with the wishes of Surg. Gen. Norman T. Kirk. General Kirk felt that the Medical Department should assume full responsibility for its entire history in view of the global scope of the work and the consequent necessity of having the history prepared by officers who have been intimately associated with the practice of military medicine throughout the world.

Medical histories were published by the Office of the Surgeon General following the Civil War and the first world war. The volumes have done much to perpetuate and disseminate professional, administrative and organizational medical advances developed under the impetus of war.

British authorities are carrying forward a similar plan for recording the medical history of the current war.

BRIG. GEN. CHARLES C. HILLMAN IN COMMAND OF LETTERMAN GENERAL HOSPITAL

After five years as chief of the professional service of the Office of the Surgeon General, Brig. Gen. Charles C. Hillman left Washington August 7 to take up his new post as commanding general of the Letterman General Hospital, San Francisco. This hospital, containing 2,500 beds, has been designated as the principal debarkation hospital for casualties from the Pacific area. General Hillman will succeed Brig. Gen. Frank T. Weed, who will soon retire. Major Gen. Norman T. Kirk, Surgeon General, U. S. Army, stated that "General Hillman's assignment as the commanding general of this important hospital on the West Coast illustrates the Army's concern with the care of sick and wounded soldiers. It is of paramount importance that such work be carried out under the direction of a medical man of wide experience and sound judgment. He has ably directed our professional service, being mainly responsible for the initiation of the blood plasma program of the Army, resulting in saving the lives of thousands of American soldiers; under his direction was organized the chest x-ray examination of all Army inductees, with a lowering of the incidence of tuberculosis among military personnel to less than one-tenth that in World War I."

General Hillman graduated from Rush Medical College, Chicago, in 1911. Following his internship in the Cook County Hospital, Chicago, he entered the Army Medical Corps in 1912. His assignments have been largely professional in character in important medical centers of the Army. His service has included several years at tropical stations during the years of peace and inspection of medical services in overseas theaters in the current emergency. In the fall of 1943 he visited Brazil as the official guest of the Brazilian government; following his visit he was decorated in recognition of the assistance that he rendered the medical service of the Brazilian army.

ARMY AWARDS AND COMMENDATIONS

Major John L. Devine Jr.

Major John L. Devine Jr., formerly of Minot, N. D., was recently awarded the Legion of Merit for "exceptionally meritorious conduct in the performance of outstanding service from Sept. 23, 1943 to March 15, 1944." Dr. Devine graduated from Georgetown University School of Medicine, Washington, D. C., in 1937 and entered the service Dec. 12, 1940.

NAVY

NEW EAR PROTECTOR ADOPTED
BY NAVY

A new ear protector, called an ear warden, which guards the wearer against the severe noise shocks of gun blasts and the high noise levels of Diesel and airplane engines, has been officially adopted by the Navy. The warden, made of a special compound of neoprene, aids in eliminating ear discomfort and pain and preventing the partial deafness resulting from long exposure to great noise. The device was developed by the University of California at Los Angeles under the direction of the National Defense Research Committee, Office of Scientific Research and Development. Placed on the allowance lists of the Bureau of Ships and the Bureau of Aeronautics, it is now being produced in small quantities and shipped out to the fleet and to naval installations. Bureau of Ships officials express the hope that manufacturers will reach maximum capacity in about three months.

Known officially as the V-51 (R) NDRC Ear Warden, the new device represents extensive research on prevention of damage to hearing from intense sound. Tests give it an insulation index of 113 against 38 for cotton, heretofore used by the Navy, and indexes ranging from 72 to 106 for other types of ear protectors. Its high insulation index will greatly lessen the hazard of partial and temporary deafness resulting from such continuous loud noises as the roar of airplane and PT boat engines and the constant backdrop of sound in engine rooms. Airplane pilots, for example, will be less likely to suffer the permanent hearing loss which is known to flight surgeons as "aviator's notch." This hearing loss, resulting from continued exposure to engine and other noise, is called a "notch" because it represents a small dip in an individual's hearing chart or audiogram in the region of 4,000 sound cycles per second. Not infrequently, long exposure to noise is a factor in permanent deafness.

While a number of other devices which have been in existence plug the ear canal and reduce the transmission of sound, they are not as well engineered acoustically as the Navy approved model, according to tests made by the Harvard University's Research on Sound Control, under the auspices of the National Defense Research Committee. Experiments were made with ten formulas of the synthetic rubber known as neoprene before the final mix was decided on for the warden. The adopted formula is noninflammable, almost as tough and elastic

as gum rubber, fully as nontoxic and nonirritating, more free from odor, and more resistant to ear-wax, soap and water, and cleaning alcohol. It is also decidedly resistant to sea water. The ear warden also meets other standards set by the Navy. It is easy to insert and remove; it is easy to keep clean; it is comfortable to wear; it is low in cost and feasible to manufacture.

NAVY AWARDS AND COMMENDATIONS

Lieutenant Bothwell Graham III

Lieut. Bothwell Graham III, formerly of Clinton, S. C., was recently awarded a Presidential Unit citation. The presentation was made at Ingram Field, Sampson, N. Y. Dr. Graham, senior medical officer of the Holl Unit dispensary, served as battalion surgeon with the First Marine division in the conquest of the Solomon Islands from Nov. 4, 1942 until Sept. 30, 1943. He entered the Navy on May 26, 1942 and was assigned to the Fifth Defense Battalion, Fleet Marine Force, and in October 1942 participated in the bloodless occupation of the Ellice Islands. He served as assistant battalion surgeon with the Fifth Defense battalion supporting Col. Carlson's Raider's offensive in the eastern landing on Guadalcanal in November 1942 and later served as battalion surgeon with Marine units holding the island of Tulagi. Dr. Graham graduated from the University of Virginia Department of Medicine, Charlottesville, in 1937.

Lieutenant Commander Cyril D. Klaus

Lieut. Comdr. Cyril D. Klaus, formerly of Grand Rapids, Mich., was recently cited by Admiral C. W. Nimitz for his "exceptional devotion to duty on the occasion of his ship receiving a direct hit during an anti-shipping sweep and bombardment. . . . Almost single handedly he administered medical care to nine seriously wounded men. By his skill and professional ability he saved the foot of a petty officer which might otherwise have had to be amputated. During this period he was deprived of the services of his chief pharmacist's mate, who had been seriously wounded. His perseverance and devotion to duty for a long, exhausting period was in keeping with the highest traditions of the naval service." Dr. Klaus graduated from Loyola University School of Medicine, Chicago, in 1932 and entered the service April 1, 1942.

MISCELLANEOUS

WARTIME GRADUATE MEDICAL MEETINGS

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

Station Hospital, Scott Field, Illinois: Chemotherapy, Including Sulfonamides and Penicillin, Dr. R. O. Muether, September 8.

Combined Wartime Graduate Medical Meeting and Meeting of the Kentucky State Medical Association, Lexington, Ky.: Chemotherapeutics in Pediatrics, Dr. John A. Toomey; Chemotherapy (Penicillin), civilian medical essayist, Dr. Donald G. Anderson; Symposium (military essayists): Medical Aspects, Brig. Gen. Hugh Morgan; Surgical Aspects, Col. B. N. Carter; Venereal Disease Treatment, Lieut. Col. Thomas Sternberg; Oration in Medicine, Dr. Frederick G. Speidel; Psychosomatic Medicine, Dr. Maurice Levine; Industrial Health Hazards, Col. Anthony Lanza; Present Status of Pain Relief in Labor, Dr. Frederick H. Falls; Cardiovascular Diseases, Dr. William D. Stroud. Evening session: president's address, Dr. Oscar O. Miller; Accelerated Medicine Today and Tomorrow, Dr. Roger I. Lee; Address, Dr. Edward Henry Cary, September 19.

Symposium on Tropical Diseases: Epidemiology, Dr. R. E. Dyer; Medical Aspects of Tropical Diseases, Capt. Alphonse McMahon; New Weapons for Control of Insect Borne Diseases, Brig. Gen. James S. Simmons; Surgical Aspects of the Chronic Dyspepsias, Dr. Irvin Abell; Oration in Surgery, Dr. J. Farra Van Meter; Arthritis, Dr. Ralph Pemberton; Address, Brig.

Gen. Fred W. Rankin; Nutrition—Its Relation to Deficiency Diseases, Col. John D. Youmans, September 20.

At the Station Hospital, Fort Williams, Portland, Maine: Cardiac Neuroses, Cardiac Emergencies, Cardiac Rehabilitation, Drs. Samuel H. Proger and T. Duckett Jones, September 21.

At the Station Hospital, Presque Isle, Maine: The Use of Penicillin and the Sulfu Drugs, Dr. Charles A. Jancway, September 21.

At the Dispensary, U. S. Naval Construction Training Center, Quoddy Village, Maine: The Pneumonias and Other Respiratory Infections, Dr. Cutting B. Favours, September 21.

At the Station Hospital, Fort Banks, Boston: The Skin, Dr. Francis M. Thurman, September 21.

At the U. S. Naval Hospital, Chelsea, Mass.: Acute Infections of the Central Nervous System, Dr. Derek E. Denny-Brown, September 21.

At the Station Hospital and Lovell General Hospital, Fort Devens, Massachusetts: Stomach, Biliary Tract, Intestinal Disorders, Drs. J. Howard Means, Robert R. Linton and Laurence L. Robbins, September 21.

At the Cushing General Hospital, Framingham, Mass.: Peripheral Vascular Disease, Dr. E. Everett O'Neil, September 21.

At the Station Hospital, Camp Myles Standish, Taunton, Mass.: Contagious Diseases and Complications, Dr. Edwin H. Place, September 21.

At the U. S. Marine Hospital, Brighton, Mass.: Blood Dyscrasias and Transfusions, Dr. Louis K. Diamond, September 21.

At the Station Hospital, Westover Field, Chicopee Falls, Mass.: Pilonidal Sinus and Common Diseases of the Anus and Rectum, Dr. E. Parker Hayden, September 21.

At the Dispensary, U. S. Naval Construction Training Center, Davisville, R. I.: Diarrheal Diseases, Drs. Ralph E. Wheeler and Francis C. McDonald, September 21.

At the U. S. Naval Hospital, Newport, R. I.: Cardiac Neuroses, Cardiac Emergencies, Cardiac Rehabilitation, Drs. Paul D. White and Mandel E. Cohen, September 21.

At the Station Hospital, Bradley Field, Windsor Locks, Conn.: Joint Injuries, Dr. John H. T. Sweet Jr. and associates, September 21.

At the Air Corps Station Hospital, New Haven, Conn.: Fractures of Extremities, Dr. Frank S. Jones, September 21.

At the Deshon General Hospital, Butler, Pa.: Tumors of the Testicle, Capt. Reuben B. Gaines, August 31.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in *THE JOURNAL* August 19, page 1147)

INDIANA

Logansport State Hospital, Logansport. Capacity, 2,395; admissions, 821. Dr. C. L. Williams, Superintendent (residents—psychiatry).

KENTUCKY

Norton Memorial Infirmary, Louisville. Capacity, 165; admissions, 4,840. Mr. Arden E. Hardgrove, Superintendent (2 interns, October 1).

MARYLAND

Maryland General Hospital, Baltimore. Capacity, 294; admissions, 5,217. Mr. Stewart B. Crawford, General Superintendent (resident—gynecology and obstetrics).

NEW JERSEY

Perth Amboy General Hospital, Perth Amboy. Capacity, 197; admissions, 4,729. George C. Shicks, Director (2 interns).

NEW YORK

Beth David Hospital, New York City. Capacity, 187; admissions, 3,985. Mr. Harold M. Salkind, Executive Director (6 interns, October 1).

Yonkers General Hospital, Yonkers. Capacity, 180; admissions, 3,646. Mr. C. E. Croft, Superintendent. (2 interns, October 1; 1 intern, January 1).

NORTH CAROLINA

Charlotte Memorial Hospital, Charlotte. Capacity, 325; admissions, 8,145. Mr. Carl I. Flath, Administrator (residents, October 1).

PENNSYLVANIA

Woman's Homeopathic Hospital, Philadelphia. Capacity, 200; admissions, 2,790. Miss Mary A. Smith, R.N., Superintendent (assistant resident).

WEST VIRGINIA

Wheeling Hospital, Wheeling. Capacity, 255; admissions, 4,870. Sister Mary Ruth, Administrator (intern, October 1).

SURVEY PALESTINE'S HEALTH FACILITIES

Word has recently been received of the safe arrival in Palestine of Rear Admiral Charles S. Stephenson of the United States Navy, who flew to that country on a mission for Hadassah, the Women's Zionist Organization of America. Admiral Stephenson, who headed the American Typhus Commission when it toured the Middle East for the United States government last year, was asked by Hadassah to make a survey of its health institutions and services in Palestine and to chart the probable future health needs of that country. Hadassah felt that such a survey was needed immediately in order to lay the groundwork for the vastly expanded health program it contemplates to prepare Palestine to deal with the health needs of the Jewish refugees, who are expected to reach there shortly in large numbers. The work of medical rehabilitation for the Nazi war victims is expected to be so vast and complex as to

require a detailed blueprinting in advance by an expert in the public health field. The large network of medical services in Palestine, both curative and preventive, is directed by Hadassah's representatives in Palestine with funds raised in more than five hundred local chapters throughout the United States.

PUBLIC HEALTH UNDER HITLER

The *Deutsche allgemeine Zeitung* of April 21 (Germany) states that, according to Professor Bockhacker of the Health Office of the DAF, the reduced number of doctors at the beginning of the war made necessary a large scale rationalization of health services. This was made easier by making use of the services of a number of foreign doctors and also by the exceptionally high standard of training of auxiliary medical personnel, especially in spheres in which in peacetime the help rendered by the doctors was more or less mechanical. One measure to intensify the valuable work of the doctor was to reduce private consultations to a minimum by sending the doctor into the factory. It is in the factories in particular that the work of the auxiliary medical staff has been highly effective. They can conduct x-ray examinations and make urine tests without calling on the time of the works doctor. Using these methods has been highly effective. It has been possible to evolve systems under which one doctor can cope with the preliminary work of fifty to sixty assistants.

Bockhacker refutes the widely held opinion that it is possible to assess the working capacity of the worker by means of some onesided examination of output. Experiments of this sort, made among others by the wehrmacht, have meanwhile been abandoned. Psychotechnical methods are never good enough, as they can never fully take the character of the individual into account. In conclusion, Bockhacker declares that war with its hard demands is promoting a natural process of selection. Whereas in the old days social measures helped the weak as well as the strong, today only the strong and the healthy can stand the pace.

According to Zora of March 15, 1944 (Bulgaria) the Chief Public Health Directorate announced that the following new cases of infectious diseases were registered during the week of March 10 to 15: scarlet fever, 44 new cases against 45 for each of the two preceding weeks; diphtheria, 64 new cases against 96 and 85 for the two preceding weeks; typhoid, paratyphoid and dysentery, sporadic cases only; typhus, 73 new cases in twenty-nine inhabited places. Only 6 of them are Bulgarian. Meningitis, 5 cases; infantile paralysis, 1 case. Five or more cases of the same disease were not registered in any single inhabited place.

Le Nouveau Journal of April 3, 1944 (Belgium) states that the Central Office of Statistics published the following figures: During January 1944 there were 10,289 live births: 5,290 boys and 4,999 girls. During the same month there were 12,385 deaths: 6,413 men and 5,972 women.

The *Nieuwe Rotterdamse Courant* of April 1, 1944 (Netherlands) publishes details of population statistics for Rotterdam. On Jan. 1, 1944 the population numbered 614,627, on February 1 612,575, and on March 1 the figures were 604,886.

Donauzeitung, Belgrade, of April 9-10, 1944 (Yugoslavia) publishes a survey of the Croat state spas, mentioning *inter alia* that four hundred springs have so far been discovered but that only forty-two are being utilized.

According to the *Völkischer Beobachter* of April 22, 1944 (Yugoslavia) an epidemic of typhoid (typhus) has broken out among the bandits on the Dalmatian island of Vis. It is continuing to spread, owing to the complete lack of doctors and medicines.

The Rumanian Ministry of Health has concluded an agreement with three Bucharest builders for the construction of a sanatorium for tuberculosis, at a cost of about 300 million lei, according to *Donauzeitung, Belgrade*, of April 2.

ORGANIZATION SECTION

WASHINGTON LETTER

(From a Special Correspondent)

Aug. 21, 1944.

Health Programs for Federal Employees

Hearings opening today on the recently introduced bill providing health programs for employees of the federal government represents the latest step in the campaign led by the Department of Agriculture and other federal officials to establish a universal health project for the civil servant. Specifically the bill, introduced by Representative Jennings Randolph (Democrat, West Virginia), who also was named by House Civil Service Committee Chairman Robert Ramspeck (Democrat, Georgia) to be chairman of the subcommittee holding hearings, provides for an allotment of funds to improve the "physical and mental efficiency" of government employees through a definite health program to be carried out in conjunction with the United States Public Health Service. It would provide free treatment of minor injuries and illnesses, free physical examinations and the elimination of health hazards. Slated to testify are representatives of the American Medical Association, the National Association of Manufacturers, the C. I. O., the A. F. L. and many other groups.

Under the Randolph bill, federal departments and agencies would have authority to establish health programs on recommendation of the Civil Service Commission and the U. S. Public Health Service. Health service would be limited, it is stated, to treatment of minor illness except in case of emergencies or of injury or illness sustained on the job; preemployment and periodic examination; referral of employees to private physicians, and extensive health education programs.

Sponsors estimate that the government has made disbursements of \$8,000,000 annually in payments to federal employees whose health has collapsed completely, forcing retirement before the normal retirement age. They say that a good health program would have kept most of these people in working condition. Backers also say that greater efficiency will be attained by watching the general physical condition of workers. Suggested as an example of a health program in private industry is that of the Standard Oil Company of New Jersey, which provides rigid examinations when employees are hired, health education and safety programs on the job, and continued, periodic check-ups. Top ranking executives get thorough examinations every ninety days. It is said that a great saving of the money invested in all workers in training and experience has resulted through preventing physical breakdown. In the govern-

ment it is said that in one agency illness caused an average loss of 10.2 days per employee and if through a health program this could have been improved by at least three days per employee over 246,000 man-days would have been saved in the year. This would be equivalent to the services of 820 full time employees.

Prominent witnesses on the opening day of the hearing were War Manpower Commission Director Paul V. McNutt, Arthur S. Flemming, Civil Service Commissioner, and Dr. Carl Peterson, Secretary of the Council on Industrial Health of the American Medical Association.

The Epidemic of Poliomyelitis

The epidemic of infantile paralysis in the Eastern Seaboard states, which up to August 21 had taken six lives and had a total of 87 cases under treatment in Washington hospitals, has elicited advice from Dr. Betty Huse of the crippled children's service of the Children's Bureau, United States Department of Labor, that poliomyelitis patients may be safely admitted to the general wards of hospitals. She urged immediate hospitalization when the disease is suspected as a means of getting for the victim expert treatment, which can prevent crippling in many cases. "Fear of the disease often is responsible for an unwillingness by the hospital to admit infantile paralysis cases when only ward accommodations are available," Dr. Huse explained, "and sometimes the general fear in the community is responsible for the hospital's stand. Poliomyelitis cases need not be placed in separate wards, although it may be desirable to do so for ease in handling. It is essential that all precautionary measures be taken, particularly the disinfection of all excretions."

Dr. Huse said that there have been indications of an epidemic condition in New York, North Carolina, Kentucky, Virginia, Pennsylvania, Ohio, Indiana and Michigan, which thus far the Southern states, with the exception of the three named, had escaped. The Mountain and Pacific states, the West North Central states and the New England states are relatively "free" of cases of poliomyelitis.

It was pointed out that the Children's Bureau administers social security funds for the care of crippled children, which are being used for the care of poliomyelitis victims. Funds are available through state agencies and, as a matter of policy, care is given under the crippled children's program to those suffering from poliomyelitis without regard to the parent's ability to pay. In other words, it was said, when poliomyelitis strikes, treatment is given.

WOMAN'S AUXILIARY

Georgia

The Woman's Auxiliary to the Medical Association of Georgia recently completed its twentieth year. At the annual meeting it was reported that 155,563 hours were given to war service by the auxiliary members. Concerted effort in the fight against the Wagner-Murray-Dingell bill was also reported in twenty-six counties.

Iowa

At a meeting of the Sioux Mes-Dames in Sioux City recently the Community Center Committee reported excellent progress made on the new project—the Lanham Nursery for children whose mothers are employed. The government supplied the funds to establish the nursery, and the Sioux Mes-

Dames give their time and provide the "extras" that are needed.

Virginia

The Woman's Auxiliary to the Medical Society of Virginia reported excellent results in its drive for the Leigh-Hodges-Wright Memorial Fund. This fund was established in 1936 for the purpose of supporting an "auxiliary bed" in the state tuberculosis sanatorium for the use of a physician or a member of his family. Since its inception it has been used to assist the daughter of a physician and a medical student who was stricken one month before receiving his degree at the University of Virginia. The fund was named in honor of the members of the State Advisory Council.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

COLORADO

Fellowships in Psychiatry.—The Colorado Psychopathic Hospital, Denver, has been granted funds by the Commonwealth Fund of New York for fellowship training in psychiatry. These fellowships are for a three year period and carry a stipend for each year. The hospital is now taking applications, and those interested should communicate with Dr. Charles A. Rymer, acting director, Colorado Psychopathic Hospital, 4200 East 9th Avenue, Denver.

State Medical Meeting.—The seventy-fourth annual session of the Colorado State Medical Society will be held at the Shirley-Savoy Hotel, Denver, September 27-29, under the presidency of Dr. George P. Lingenfelter, Denver. Among the out of state speakers will be:

Dr. Warren H. Cole, Chicago, Carcinoma of the Colon.
Dr. Fredrick A. Willius, Rochester, Minn., Variables Concerned in Recovery or Death in Acute Coronary Occlusion
Dr. Maxwell M. Wintrobe, Salt Lake City, A Physiologic Approach to Blood Dyscrasias and Their Diagnosis
Dr. Herman L. Kretschmer, President of the American Medical Association, Chicago, Problems in the Management of Infections in the Urinary Tract.

Reuben G. Gustavson, Ph.D., president of the University of Colorado, Boulder, will address the annual banquet Friday on "Place of the Medical School in the Community."

X-Ray Survey Unit Given to State.—On July 18 special ceremonies marked the presentation of Colorado's new chest x-ray survey unit to the state board of health, the acquisition of which completes the first stage of the program recommended by the tuberculosis control committee of the Colorado State Medical Society. The second phase of the program, which was to begin in Denver late in July and in Otero County August 1, is "the employment of photoroentgenographic equipment under the joint auspices of the division of tuberculosis of the state board of health and the Colorado Tuberculosis Association for the purpose of identifying and registering as many as possible of the cases of active progressive tuberculosis in the state of Colorado." While the state medical society has approved the tuberculosis case finding program, the approval of the local county or district medical society will be required before the unit will be operated in any local area.

DELAWARE

State Medical Meeting.—The Medical Society of Delaware will hold its annual meeting in Lewes, September 11-12, under the presidency of Dr. Richard C. Beebe, Lewes. A preliminary program announces the following speakers:

Dr. Stanley Worden, Dover, Tick Fever
Dr. John H. Foulger, Wilmington, Preventive Medicine.
Dr. George J. Bones, Wilmington, Bone Marrow Transfusion.
Dr. John B. Lownes, Philadelphia, Surgical Treatment for Prostatic Obstruction.
Dr. Harrison F. Flippin, Philadelphia, Penicillin Therapy.
Dr. Norris W. Vaux, Philadelphia, Caudal Analgesia
Dr. George H. Gehrmann, Wilmington, Industrial Medicine
Dr. Clayton T. Beecham, Philadelphia, The Early Diagnosis and Management of Gynecologic Cancer

ILLINOIS

Changes in Health Officers.—Dr. Cyrus P. McRaven, Macomb, has been appointed health director of McDonough and Fulton counties, succeeding the late Dr. Edward L. Hill Jr., Mount Sterling.

Chicago

Personal.—Dr. John J. Madden, assistant psychiatrist at the Cook County Psychopathic Hospital, has been named acting superintendent of the hospital during the absence of Dr. Vladimir G. Urse, who has been granted a military leave as superintendent of the hospital.

Searle Plans Expansion Program.—As soon as building restrictions are lifted, G. D. Searle and Company, manufacturer of pharmaceuticals, plans to construct at least one additional building on a recently acquired 5½ acre tract in Skokie which adjoins its present property and on which are located the Searle Research and Manufacturing Laboratories. It is

said that the increased research and manufacturing facilities are necessary in view of the continuing rapid expansion of the firm's business, which the present laboratories, completed in March 1942, can no longer accommodate.

Courses in Hospital Administration.—Five courses in hospital administration will be offered in the first semester at Northwestern University beginning September 20. The courses will be on history and development of hospitals, organization and management of hospitals, professional services to the hospital patient, legal, political and sociological aspects of hospital administration, and fundamentals of medical science. Prospective students may apply for admission as candidates for the degrees of bachelor of science in hospital administration or master of hospital administration or as special students. The course in fundamentals of medical science will be open to students who are not registered for other courses in the program in hospital administration as well as to the regular students. The lecturer in the medical science course, which will be offered for the first time, will be Dr. Theodore R. Van Dellen, associate professor of medicine, Northwestern University Medical School. Scholarships are available to selected candidates through funds provided by the American Hospital Supply Corporation and the Johnson and Johnson Research Foundation.

MICHIGAN

Medical Service Returns Loan to State Society.—On July 23 Michigan Medical Service returned to the Michigan State Medical Society the sum of \$17,544, which was the amount originally advanced by the latter to assist the medical service as organizational expense in 1939-1940.

Upper Peninsula Meeting.—Dr. Edward Sawbridge, Stephenson, was chosen president-elect of the Upper Peninsula Medical Society at its annual meeting in Houghton, July 27, and Dr. Nathan J. Frenn, Bark River, was installed as president. Escanaba was chosen as the place for the 1945 meeting. Among the speakers at the meeting were Drs. Norman F. Miller, Ann Arbor, on "Diagnosis and Management of Cervical Carcinoma"; Edward L. Tuohy, Duluth, Minn., "Differential Diagnosis of Liver Diseases," and Walter C. Alvarez, Rochester, Minn., "Hints in the Recognition of Neuroses."

Appointments at Michigan.—Dr. James L. Wilson, professor of pediatrics, New York University College of Medicine, has been appointed professor and chairman of the department of pediatrics and communicable diseases at the University of Michigan Medical School, Ann Arbor, effective October 15, and Dr. William Dodd Robinson, formerly of Vanderbilt University School of Medicine, Nashville, Tenn., has been appointed assistant professor in the department of internal medicine and director of the Rackham Arthritis Research Unit, effective September 1. Gordon K. Moe, Ph.D., instructor in pharmacology, Harvard Medical School, Boston, has been named assistant professor in the department of pharmacology, effective August 1.

Changes in Health Officers.—Dr. Clement E. Lockwood, Holly, has been appointed director of the Alger-Schoolcraft District Health Department, succeeding Dr. Henry H. Asher, who died recently.—Dr. Robert E. Flood, Northport, has been appointed health officer of St. Joseph County, succeeding Dr. Frederick A. Musacchio (THE JOURNAL, May 20, p. 220), who resigned to accept a similar position in Texas.—Dr. Sidney I. Franklin, Newberry, has resigned as director of the Luce-Mackinac County Board of Health.—Dr. Willard G. Beattie has been named health officer of Ferndale.—Dr. Leonard C. Bate, Stambaugh, has resigned as director of the Iron-Ononagon County Health Department, effective August 15, to enter private industrial practice.—Dr. Neal J. McCann has resigned as health officer of Ishpeming.—Dr. Hugh B. Robins has been appointed health officer of the city-county health department in Battle Creek. Dr. Awra A. Hoyt, who served as health officer of Battle Creek for twenty-four years, resigned recently.

NEW JERSEY

New Officers of State Health Board.—Dr. Martin H. Collier, Grenloch, was elected president of the New Jersey State Department of Health at a meeting in Trenton, July 11. Clarence J. Schweikhardt, D.D.S., Maplewood, is vice president. New members of the board are Dr. Frederick P. Lee, Paterson, and Mr. Thomas L. Lawrence, Hamburg.

Personal.—Robert P. Fischelis, Sc.D., has resigned as secretary of the New Jersey Board of Pharmacy, a position he has held since 1926, to devote full time to his work as chief chemist of the drugs and health supplies branch, office of

civilian requirements of the War Production Board, Washington, D. C. Temporarily he will continue to live in Trenton and will continue to serve as president of the New Jersey Pharmaceutical Association. Mr. Adolph V. Palumbo, a member of the state board of pharmacy since 1938, will succeed Dr. Fischelis as secretary of the board.

NEW YORK

Stockton Kimball Named Assistant Dean at Buffalo.—Dr. Stockton Kimball, associate in medicine and pharmacology at the University of Buffalo School of Medicine, Buffalo, on July 15 was appointed assistant dean of the school. Dr. Kimball graduated at the University of Buffalo in 1929 and has been for the past seven years a member of its faculty.

Personal.—Dr. Edith Gardner Mead, member of the Poughkeepsie Board of Health, has been appointed full time medical supervisor of the Poughkeepsie school system to succeed Dr. Helen L. Palliser, whose resignation will become effective on October 1. Dr. Palliser served on a part time basis.—Dr. Herman G. Weiskotten, Syracuse, on July 25 was reappointed a member of the Public Health Council for a term of six years. Dr. Weiskotten, who is dean of the Syracuse University College of Medicine, has been a member of the council since 1936.

New York City

Dr. Moorhead Delays Retirement.—Dr. John J. Moorhead, who was to retire August 1 as medical director of the New York City Transit System, has consented to continue in the position for another year at the request of the board of transportation.

New Department of Medical Films.—A new department of medical films is now available in the New York University Film Library under the supervision of a committee of the New York University College of Medicine. Distribution of the films will be restricted to professional groups and organizations. A series of motion picture films on neuropsychiatric disorders is available to medical and strictly scientific groups for educational purposes by the new department. The films are the work of Dr. S. Philip Goodhart, chief of the neuropsychiatric division, Montefiore Hospital for Chronic Diseases, and professor of clinical neurology, Columbia University College of Physicians and Surgeons, and Major Benjamin H. Balser, M. C. The films have been used for a number of years in courses given to medical students at Columbia and are now made available for teaching purposes and professional discussion groups through the medical department of the New York University Film Library.

Academy of Medicine to Define "Fee Splitting" and "Rebating."—On August 2 the council of the New York Academy of Medicine voted to amend its constitution and by-laws to define more fully the terms "fee splitting" and "rebating" and voted to require applicants for membership to sign the following pledge: "The undersigned hereby agrees to accept the council of the academy as the sole and only judge of his qualifications to remain a fellow." The action is an aftermath of the recent Moreland investigation into "fee splitting" and "rebating" among physicians treating workmen's compensation claimants, which resulted in a number of physicians having their privileges to treat these cases revoked. The academy is reported to have admonished a group of its fellows who were implicated in the charges. In an announcement to the press the academy is reported to have said "The practices referred to are, in the opinion of the academy, entirely contrary to the Hippocratic Oath taken by every physician on receipt of his medical degree; without his signed pledge to avoid such practices no candidate for fellowship can be considered by the academy; and on proof of guilt in such matters, a member is subject to suspension or expulsion from fellowship."

Graduate Courses.—Forty-seven part time courses in widely different branches of medicine, and five full time one week courses will be given for postgraduate physicians by the Mount Sinai Hospital in affiliation with the Columbia University College of Physicians and Surgeons. The courses will begin on September 25 and will be taught by members of the attending staff of Mount Sinai as part of the program of postgraduate medical education of Columbia University. Stress is laid in teaching on diagnosis, treatment and important technical procedures, and courses will include operative demonstrations, clinical conferences and ward rounds as well as lectures. Among the subjects covered in the fall curriculum will be allergy, anesthesia, cardiovascular diseases, electro-

cardiography, fluoroscopy, gastroenterology, gastroscopy, hematology, diseases of the kidneys and arteries, neurology, electroencephalography, ophthalmology, orthopedics, otology, pediatrics, physical therapy, proctology and tropical medicine. A second series of courses will begin on Feb. 5, 1945. The courses are not intended to train physicians to become specialists but will of interest to physicians who wish to train in laboratory methods as well as bedside instruction. The courses are divided into two groups, those open to all general practitioners and those open only to physicians who have had adequate preliminary training and experience in a related specialty. Application should be made to the Secretary for Medical Instruction, Mount Sinai Hospital, 100th Street and 5th Avenue, New York 29.

OREGON

University News.—Dr. Kenneth C. Swan, research associate in ophthalmology, State University of Iowa College of Medicine, Iowa City, has been appointed associate professor of ophthalmology at the University of Oregon Medical School, Portland.—Dr. L. Everard Napier, director of the Calcutta School of Tropical Medicine in India, lectured at the University of Oregon Medical School July 15 and 17. At the invitation of the National Research Council and under the auspices of the John and Mary R. Markle Foundation, Dr. Napier has been lecturing throughout the country on tropical diseases.

State Medical Meeting.—The Oregon State Medical Society will hold its seventieth annual session at the University of Oregon Medical School, Portland, September 2-3, under the presidency of Dr. Thompson Coberth, The Dalles. The preliminary program includes the following speakers:

Comdr. Jacob J. Enkelis (MC), (subject not announced).
Major George W. Waters, M. C., Fractures of the Elbow Joint.
Capt. Scott H. Goodnight, M. C., Clinical Notes on Malaria.
Capt. Milton Mendlowitz, M. C., Strain of the Pectoralis Minor Muscle as a Cause of Precordial Pain.
Dr. Charles D. Donahue, Eugene, Use of Stilbestrol in Carcinoma of the Prostate.
Dr. Edwin E. Osgood, Portland, Clinical Use of Penicillin.
Dr. John E. Raaf, Portland, Care of the Patient with Acute Spinal Cord Injury.
Dr. Eugene W. Rockey, Portland, Care of Colostomies.
Dr. Raymond R. Staub, Portland, Brucellosis.
Dr. James D. Stewart, Eugene, Subtrochanteric Osteotomy for Non-union of Hip Fracture.

One of the features of the meeting will be a symposium on "Medical Problems Arising Under the Workmen's Compensation Law and the Occupational Disease Law" by Dr. Douglas G. Cooper, assistant medical director, and Mr. F. I. Brown, claims supervisor, Oregon State Industrial Accident Commission, Salem.

PENNSYLVANIA

State Medical Meeting.—The ninety-fourth annual session of the Medical Society of the State of Pennsylvania will be held at the Hotel William Penn, Pittsburgh, September 19-21, under the presidency of Dr. Augustus S. Kech, Altoona. Included among the guest speakers will be:

Dr. Clyde L. Deming, New Haven, Conn., Acute and Chronic Symptoms and Diagnosis of Movable Kidney; Conservative and Radical Treatment.
Dr. James P. Leake, Bethesda, Md., The Control of Communicable Diseases.
Dr. Emil Novak, Baltimore, Some Misconceptions and Abuses in Gynecologic Organotherapy.
Dr. Ramon Castroviejo, New York, Indications for Keratoplasty and Keratetectomies, with Kodachrome Lantern Slides and Motion Pictures.
Dr. Herman E. Pearce Jr., Rochester, N. Y., The Avoidance of Difficulty in Biliary Surgery.
Dr. Earl W. Netherton, Cleveland, Eczema—Management and General Considerations.
Dr. Alexander S. Wiener, New York, Rh Factors and Their Application in Clinical and Legal Medicine.
Dr. Clayton W. Greene, Buffalo, Certain Unusual Clinical Pictures in Renal Disease.

The program also includes a number of Pennsylvania physicians. One feature of the meeting will be a panel discussion on clinical endocrinology by Dr. Edward H. Rynearson, Rochester, Minn., Dr. Charles W. Dunn, Philadelphia, and Dr. Novak.

Philadelphia

Clinics for Early Diagnosis of Cancer.—The International Cancer Research Foundation has established five clinics in Philadelphia to afford periodic physical examinations to discover early symptoms of cancer. Emphasis is placed on prevention of the disease, and the clinics are for both men and women. The clinics are located at the Temple University Hospital, Woman's Medical College of Philadelphia, Jefferson Medical College, Hospital of the University of Pennsylvania, and Hahnemann Hospital, according to the Temple University News Letter.

UTAH

Appointments at Utah.—Dr. Francis D. Gunn, associate professor of pathology, Northwestern University Medical School, Chicago, has been appointed professor and head of the department of pathology at the University of Utah School of Medicine, Salt Lake City, effective September 1, according to the *Deseret News*, July 15. Dr. Charles E. McLennan, assistant professor of obstetrics and gynecology, University of Minnesota Medical School, Minneapolis, has been appointed professor and head of the department of obstetrics and gynecology at the University of Utah. Plans were also announced to construct an animal laboratory building. The graduation of the first fourth year class at the medical school will be held September 12.

WISCONSIN

State Medical Meeting in Milwaukee.—The one hundred and third annual session of the State Medical Society of Wisconsin will be held in Milwaukee, September 18-20, under the presidency of Dr. Russell M. Kurten, Racine. A preliminary program lists the following out of state speakers, among others:

- Dr. Wallace E. Herrell, Rochester, Minn., Penicillin Therapy.
Dr. James G. Carr, Chicago, Cardiac Traumatism.
Dr. Curtis J. Lund, Minneapolis, Nutrition in Pregnancy.
Dr. Sumner L. S. Koch, Chicago, Treatment of Burns.
Dr. T. Duckett Jones, Boston, Prevention and Treatment of Rheumatic Fever.
Dr. William A. Thomas, Chicago, Histoplasmosis with Diagnosis Made from Multiple Cutaneous Lesions.
Dr. Owen H. Wangenstein, Minneapolis, Ulcer Problem.
Dr. Emil D. W. Hauser, Chicago, Low Back Pain Due to Functional Decompensation of the Back.
Dr. Samuel W. Donaldson, Ann Arbor, Mich., Professional Bureau of the College of Radiology and Its Relationship to Hospitals.
Dr. Edward A. Oliver, Chicago, The Eczematous Dermatoses.
Dr. Loyal Davis, Chicago, Surgery in the Soviet Union.
Dr. Morris Fishbein, Editor of *THE JOURNAL*, Chicago, Postwar Planning for Medical Services.
Dr. Newell C. Gilbert, Chicago, Physiologic Conditions to Be Considered in Coronary Heart Disease.
Dr. Bayard T. Horton, Rochester, Clinical Use of Histamine.
Dr. M. Edward Davis, Chicago, Modern Management of the Third Stage of Labor and Its Complications.
Dr. Henry L. Williams, Rochester, Chemotherapy in Otolaryngology.
Dr. Avery D. Prangen, Rochester, Surgical Treatment of the Extraocular Muscles—Some Suggestions.
Lieut. Col. James E. Ash, M. C., curator, Army Medical Museum, Washington, D. C., Epibulbar Tumors.
Dr. John A. Toomey, Cleveland, Present Status of the Early Treatment of Poliomyelitis.
Lieut. Comdr. James P. Conway (MC), A Study of the Spread of Streptococcal Disease.

On Tuesday morning, September 19, Dr. Winfred Overholser, professor of psychiatry, George Washington University School of Medicine, Washington, D. C., will deliver the Theresa Lemberg Rogers Memorial Lecture on "Psychiatric Problems in the Aged." Obstetric manikin demonstrations will be conducted by Drs. Davis, Lawrence M. Randall, Rochester, and Russell J. Moe, Duluth. Other features during the meeting will include round table luncheons, the secretaries' conference and motion pictures. Entertainment will be provided at the smoker by Drs. Leander J. VanHecke, Milwaukee, and Emmett T. Ackerman, Muscoda, and his wife.

GENERAL

Mary Beard Resigns from Red Cross.—Miss Mary Beard for a number of years director of the American Red Cross nursing service, has resigned for reasons of health. Her successor is Miss Virginia M. Dunbar, who has been serving as deputy to Miss Beard.

Special Society Elections.—Dr. Clarence G. Salisbury, medical director of Sage Memorial Hospital, Ganado, Ariz., was chosen president-elect of the Association of Western Hospitals at its annual meeting in San Francisco July 5 and Dr. Fred O. Butler, medical director of Sonoma State Home, Eldridge, Calif., was installed as president. Other officers include Mr. Gordon W. Gilbert, administrator of St. Luke's Hospital, Spokane, Wash., and Dr. John C. Sharp, medical director of Monterey County Hospital, Salinas, Calif., vice presidents, and Mr. George U. Wood, superintendent of Peralta Hospital, Oakland, Calif., treasurer.—Dr. Wingate M. Johnson, Winston-Salem, N. C., was elected president of the American Geriatrics Society at its annual session held in New York, June 8-10, and Drs. Walter E. Vest, Huntington, W. Va., and Edward B. Allen, White Plains, N. Y., were chosen vice presidents. Dr. Malford W. Thewlis, Wakefield, R. I., is the secretary and Dr. Richard J. Kraemer, Wickford, R. I., treasurer. The next meeting will be held in New York, June 7-9, 1945.

Contest for Hospital Design.—The Modern Hospital Publishing Company offers six awards in each of two competitions, one for the best designs for a small general hospital and two for the best designs for a small community health center. The competitions are open to any architect, architectural student or draftsman, excepting only those regularly employed by the professional adviser or by the firms or organizations of the judges. Two or more architects or an architect and a hospital administrator, consultant or health officer may work as a team. The first award in both competitions will consist of \$1,000. The other awards are \$750, \$500 and three of \$100. The competition is offered to encourage the building, in areas where they are needed, of small hospitals that are efficiently arranged, suitable for smaller communities, creditable in architecture, simple in design, in good taste, economical to build, to operate and to expand and that make maximum use of the best ideas in planning and construction; to furnish to the trustees of small hospitals ideas that will stimulate them to provide better accommodations, and to encourage architects to give more attention to the designing of good small hospitals and community health centers. The judges are Dr. Malcolm T. MacEachern, associate director, American College of Surgeons; Graham Davis, hospital consultant, W. K. Kellogg Foundation, Battle Creek, Mich.; Dr. Vane M. Hoge, chief, hospital facilities section, U. S. Public Health Service; Mies van der Rohe, professor of architecture, Illinois Institute of Technology, Chicago; Nathaniel A. Owings, Chicago; Henry Shepley, Boston, and Charles Butler, New York, all architects. Additional details may be addressed to the Modern Hospital Publishing Company, Inc., 919 North Michigan Avenue, Chicago 11.

Academy of Neurological Surgery.—The seventh annual meeting of the American Academy of Neurological Surgery will be held at the Ashford General Hospital, White Sulphur Springs, W. Va., September 7-9, under the presidency of Dr. A. Earl Walker, Chicago, whose address will be on "Neurological Surgery at the Crossroads." Among other speakers will be:

- Capt. Major H. Harris and Major George L. Maltby, M. C., Preliminary Analysis of Lumbar Sympathectomy in the Treatment of Trench Feet.
Lieut. Col. Daniel C. Elkin, M. C., Vascular Injuries.
Major Robert P. Kelly, Jr., M. C., Split Thickness Grafts in the Treatment of Osteomyelitis.
Capt. William C. Ward and Lieut. Frank F. Allbritten Jr., M. C., Presentation of Problems in Peripheral Nerve Surgery.
Dr. Edwin B. Boldrey, San Francisco, Stainless Steel Wire Mesh in the Repair of Skull Defects.
Major M. Barnes Woodhall, M. C., The Fate of Whole Fresh Homogeneous Nerve Grafts in Men with Remarks Concerning Frozen Dried Nerve Grafts.
Drs. Arthur R. Elvidge and Hamilton A. Baxter, Montreal, Que., A Modification of the Roger Anderson Splint for Severe Fractures of the Facial Bones Associated with Cranial Fractures.
Col. William J. Bleckwenn, M. C., Observations on Neurosurgery and Neuropsychiatry in the South Pacific Theater.
Drs. Joseph P. Evans and Mark I. Scheinker, Cincinnati, Histologic Studies of the Brain Following Head Trauma and Decerebrate Rigidity Following Head Injury.
Drs. Theodore C. Erickson and Henry M. Suckle, Madison, Wis., Observation on the Scalenus Anticus Syndrome in War Workers.
Lieut. Col. David L. Reeves, M. C., Primary Chronic Coccidioid Meningitis.
Major George A. Baker, M. C., Eosinophilic Granuloma of the Skull.
Dr. Wallace B. Hamby, Buffalo, Tumors of the Spinal Canal in Childhood.
Lieut. Robert H. Pudenz and Lieut. C. Hunter Shelden, M. C., Ventriculocisternostomy: Report of Four Cases.

On Saturday morning there will be a tour of the hospital and ward rounds with the medical staff of the Ashford General Hospital.

Aero Medical Association.—The sixteenth annual meeting of the Aero Medical Association of the United States will be held at the Jefferson Hotel, St. Louis, September 4-6. Among the speakers will be:

- Dr. William R. Stovall, Washington, D. C., Physical Requirements and the Private Flier.
Dr. Wilbur F. Smith, Indianapolis, Impressions of a Field Examiner on Entering the Washington Office.
Malcolm Y. McCormick, M.A., Washington, D. C., Physical Competency and Performance.
Dr. Louis B. Flexner, Baltimore, The National Research Council's Advisory Committee on Civilian Aviation Medicine.
Dr. Alvan L. Barach, New York, Development of Pulmonary Active Tuberculosis as the Result of Aeroembolism at Simulated Altitude Above 40,000 Feet.
Dr. Meyer H. Halperin, Ross A. McFarland, Ph.D., and J. I. Niven, Ph.D., Boston, Alteration in the Effects of Altitude on Vision by Glucose and Carbon Monoxide.
Dr. Thomas H. Sutherland, Marion, Ohio, The Legal Basis of Medical Safety in Aviation.
Drs. Henry F. Helmholz Jr., J. B. Bateman and Walter M. Boothby, Rochester, Minn., Studies in High Altitude Physiology.
Drs. Charles F. Code, Earl H. Wood and Edward H. Lambert and Edward J. Baldes, Ph.D., Rochester, Studies on the Physiology of Acceleration.
Dr. William R. Rowland, Randolph Field, Texas, Night Blindness in Flying Personnel—Observations on Patients: Studies at the A. A. F. School of Aviation Medicine.

Comdr. Ashton Graybiel (MC) and Lieut. W. B. Clark H-V(S), Pensacola, Fla., Disorientation in Pilots.
Lieut. Joseph L. Lilienthal Jr. (MC), Pensacola, The Use of Hyoscine in Air Sickness.
Lieut. Col. F. G. Hall, A. C., Dayton, Ohio, Physiologic Adjustments to High Altitudes.
Lieut. Col. A. P. Gage, A. C., Dayton, Pressure Breathing.
Lieut. Max David Steer, H-V(S), Pensacola, Improvement of Voice Communication in Flight.
Capt. S. R. M. Reynolds, M. C., and Capt. H. Dohrman, M. C., Orlando, Fla., The Role of the Personal Equipment Officer in the A. A. F.
Lieut. Comdr. Kenneth S. Scott (MC) and Lieut. Comdr. Marion T. Martin (MC), Pensacola, Aviation Safety.
Major George H. Hass, M. C., Randolph Field, Relation Between Force, Major Injuries and Aircraft Structure with Suggestions for Safety in Design of Aircraft.
Col. Manford S. White, M. C., Orlando, Medical Training at the A. A. F. School of Applied Tactics.
Lieut. Richard A. Howard, Orlando, Survival Off the Land.
Dr. George R. Harris, Pittsburgh, Physical Fitness.

Incidence of Poliomyelitis.—In the first thirty-one weeks of 1944 the United States has had more cases of infantile paralysis reported than at any comparable time shown on the records in twenty-eight years. The National Foundation for Infantile Paralysis announces. Latest figures from the U. S. Public Health Service, showing state reports through August 5, reveal a total of 3,992 cases, the National Foundation said. This is 1,226 cases more than reported for the same period last year, when the nation suffered its third worst poliomyelitis epidemic, and 1,089 cases more than in 1931, when the second worst outbreak was recorded. The records of the worst outbreak in 1916 show there were 6,767 cases by August 1 of that year. In five states where the outbreaks are in epidemic or near epidemic proportions, the total cases reported through Aug. 5, 1944 are higher than those states reported for the entire year of 1943. They are:

State	Through Aug. 5, 1944	Entire Year of 1943
New York	902	692
North Carolina	470	37
Kentucky	377	157
Pennsylvania	284	143
Virginia	205	61

The serious or threatening outbreaks this summer are confined almost entirely to states east of the Mississippi, while last year's were largely west of the river.

States which last year had high rates are now nearly normal:

State	Through Aug. 5, 1944	Comparable Period of 1943
California	196	842
Oklahoma	30	240
Kansas	36	109
Texas	116	685

Mr. Basil O'Connor, president, reported that the National Foundation has sent epidemic aid, either in emergency funds, professional personnel or supplies and equipment, into thirteen affected states. In addition to the five named they are Ohio, Tennessee, Michigan, Mississippi, Indiana, Washington, Oregon and California. Outbreaks in the latter three states earlier this year have now waned.

Dr. Bachmeyer Directs Hospital Service.—Dr. Arthur C. Bachmeyer, director of hospitals of the University of Chicago and associate dean of the university's Division of Biological Sciences, on August 1 was chosen director of study in the two year program to survey American Hospitals and their postwar expansion needs. A recently appointed commission, of which Thomas S. Gates, LL.D., president of the University of Pennsylvania, Philadelphia, is chairman, will carry out the study, which will be financed by a grant of \$35,000 each by the Commonwealth Fund of New York, the National Foundation for Infantile Paralysis and the W. K. Kellogg Foundation. The American Hospital Association will make an additional contribution of \$15,000 if it becomes necessary. It is hoped that the study will determine the adequacy of distribution of present hospital facilities and the best method for ensuring adequate hospital care and such facilities to all citizens. Members of the committee include:

Charles P. Cooper, New York, president, Presbyterian Hospital, first vice president, American Telephone and Telegraph Company.
Katharine J. Densford, R.N., Minneapolis, director, School of Nursing, University of Minnesota.
Albert W. Dent, New Orleans, president, Dillard University (Flint Goodridge Hospital).
Rt. Rev. Msgr. Thomas O'Dwyer, Los Angeles, director of Catholic Charities, Archdiocese of Los Angeles.
Clinton Golden, Pittsburgh, assistant to the president, United Steelworkers of America.
Dr. Everts A. Graham, St. Louis, surgeon, past president, American College of Surgeons.
Dr. Wilson L. Halverson, Sacramento, commissioner of health of California.
Herbert Hoover, Stanford University, Calif., trustee, Stanford University (Stanford University Hospital).
Ada Belle McCleery, R.N., Stepping Stone, Geneva, Ill., former superintendent, Evanston Hospital, Ill.
Dr. Leroy M. S. Miner, Boston, professor of clinical oral surgery and dean, Harvard University Dental School, Boston.

Dr. Claude W. Munger, New York, medical director, St. Luke's Hospital.

Clarence Poe, LL.D., Raleigh, N. C., editor, the *Progressive Farmer*.
Dr. Willard C. Rappleye, New York, dean, Columbia University College of Physicians and Surgeons.

Edward L. Ryerson Jr., Chicago, trustee, University of Chicago (University of Chicago Clinics), chairman of the board, Inland Steel Company.
J. Barrye Hall, Farnville, Va., president, Southside Community Hospital.

Frank J. Walter, Denver, administrator, St. Lukes Hospital.
Matthew Woll, Washington, D. C., vice president, American Federation of Labor.

LATIN AMERICA

Health Activities in Latin America.—*Institute of Legal Medicine.*—The Faculty of Medical Sciences of the Central University of Ecuador announces the creation of a permanent Institute of Legal Medicine in connection with the university. Dr. José Cruz Cueva, Pichincha No. 24, Quito, Ecuador, has been appointed secretary of the institute, the objectives of which are to disseminate knowledge in the field of legal medicine, the improvement of its teaching in the universities, scientific investigation and research to furnish a basis for the greater understanding and solution of medicolegal problems in Ecuador, technical cooperation with all agencies and officials engaged in the administration of justice, and the technical reform of the laws dealing with medicolegal problems. Life members of the institute will include the dean of the faculty of medical sciences and the professors of legal medicine, psychiatry, histology and pathologic anatomy, criminology and penal law and toxicology of the Central University of Ecuador.

Hospital News.—A 300 bed hospital is planned in La Paz at a cost of about one million dollars. It will be open only to workmen and their families. The project will be directed by the Caja de Seguro y Ahorro Obrero, the Workmen Health Security Institution and Savings Bank. The town has one larger hospital having accommodations of about 550 beds.

Society News.—According to *Medica*, the second National Congress of Cancer will be held early in March 1945 in Havana under the auspices of the Cuban Society of Cancer. It is planned to open to the public for the first time during the congress the dispensary of the League Against Cancer.—Dr. Oseas Sampaio was chosen president of the Associação Piauiense de Medicina, Piahy, Brazil, recently.

Puerto Rico's Proposed Medical School.—A 600 bed hospital and ten other buildings to be spread over 30 acres of land are included in the general plans for the proposed medical school in Puerto Rico to be established under the auspices of the University of Puerto Rico, San Juan, with an allotment of \$500,000 granted by local law to organize the school. The complete cost of the project will ultimately be \$4,500,000. It is planned to have a contagious disease hospital in a four story building providing 100 beds; a cancer hospital of the same size, already approved by the Insular Health Department; an ophthalmic institute of the same size; a service building with an electric plant, laundry and other services; a blood bank and other laboratories; a kennel for animals used in experiments; a pharmacy and dentistry school; class room units; a dormitory for nurses; a dormitory and cafeteria for 200 students; a psychiatric hospital, and a school for obstetrics. There would also be recreation facilities. The school would graduate fifty doctors each year.

Health Program in Trinidad.—Two million dollars will be expended in Trinidad in the coming year for the expansion of health services which include the creation of three health centers, in addition to two already in operation, the establishment of twelve rural dispensaries, an educational health campaign, improvement in the Trinidad Leprosarium, employment of additional specialists for hospitals, higher salaries for nurses, and appointment of an officer to supervise hygienic instructions in schools and colleges. Work on the construction of a tuberculosis sanatorium, deferred because of war priorities on building materials, is to begin soon; the anticipated cost will be \$1,500,000. As a part of the general program to improve health standards in the British West Indies, courses in hygiene and sanitation in all scholastic curriculums will be included. Plans are also under way to establish a laboratory designed for the research in nutritional problems in the West Indies.

CORRECTION

Antibacterial Action of Penicillin.—In the article on penicillin by Herrell et al., *THE JOURNAL*, August 12, page 1004, in the column headed "Susceptible Organisms," table 1, the term "Vibrio comma" should be "Clostridium septicum." The term "Vibrio comma" should appear at the bottom of the column headed "Insusceptible Organisms."

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 22, 1944.

Prevention of Fires and Explosions in Operating Theaters

Accidents due to the ignition and explosion of anesthetic vapors led to the setting up of a committee of the Institution of Electrical Engineers to consider the electrical conditions in operating rooms and to design equipment for the elimination of explosives. The cooperation of the Medical Research Council, the British Standards Institution, the Surgical Instrument Manufacturers Association and leading surgeons was obtained and resulted in the formation of the Operating Theaters Electrical Apparatus Committee. During the early part of the war the work was in abeyance, but the prevalence of fatal explosions has led to recommendations which have now been accepted by the Ministry of Health and sent to all hospitals in the form of a warning notice to be posted in operating theaters and anesthetic rooms. The notice states that accidents are usually due to (1) ignition of anesthetic vapor by cautery, surgical diathermy, electrical switches or similar appliances; (2) overheating, short circuiting or breakage of the small electric bulbs, or their conducting wires or leads, used in various forms of endoscopy; (3) generation of static electricity resulting in trolleys, tables, blankets and even the clothing of operating personnel becoming charged with electricity. (Contact with an object of a different electrical potential may produce a spark which ignites an anesthetic vapor. The use of alcohol for cleansing the patient's skin involves similar danger.)

In describing the recommended precautions, the committee points out that hot wire cauteries and surgical diathermy present possibilities of ignition, especially near the patient's face. There is also some danger attending the use of x-ray apparatus, motor driven suction apparatus and electrical equipment for lighting, heating and sterilizing, unless it is kept away from the patient. At least five minutes before any form of cautery or diathermy is to be used, all ignitable anesthetics, such as ether, ethylene, ethyl chloride or cyclopropane, must be removed from the apparatus and a safe agent must be substituted. A simple precaution is to blow air or some safe gas through the anesthetic apparatus before use when diathermy is projected, even under a nonignitable anesthetic. It is not sufficient to turn off the ether tap, as this may not be gas tight. The ether bottle should be removed, and if it must be replaced it should first be rinsed out. The presence of oxygen and/or nitrous oxide, although these are not ignitable, increases the risk of ignition of other gases. Surgical lamps are often used with some form of regulating resistor. These are usually made for 2.5 or 3.5 volts. It may be dangerous to increase the voltage beyond this to meet the surgeon's request for more light. All insulated flexible wire connected with surgical lamps should be inspected and renewed. If this is not done, the insulation may become faulty or some of the wire strands may be broken, although the lamp appears to function normally. Technical advice should be obtained on methods to limit the current and voltage to values which greatly reduce the risk of ignition even if a short circuit occurs. Foot switches should be flame proof. Insulated apparatus, such as rubber tired trolleys, can be electrified in various ways—for instance, by drawing a dry blanket or towel across them. All anesthetic and operating instrument tables and all

trolleys, if insulated by nonconducting rubber tires, must be fitted with trailing chains which make good contact with the floor. This method is useless when the floor is covered with dry, nonconducting rubber, cork carpet or linoleum. Anesthetists and others should remember that under suitable conditions they themselves may become charged by their own movements, and shoes incorporating "conducting rubber" may be used as a safeguard on conducting floors. The general use of this rubber for tubing and tires would tend to prevent accidents. Under war conditions, it is pointed out, dampening of the floor may have to be adopted instead. The generation of static charges is facilitated by a dry atmosphere. Hence the danger is greater in time of high barometric pressure. Some security may be obtained by slightly dampening face pieces, bags, tubing and floors. If it is necessary to make or unmake metallic unions or carry out similar alterations on anesthetic equipment, all ignitable gases must first be cut off.

Diethylstilbestrol in Cancer of the Breast

At the Section of Radiology of the Royal Society of Medicine the treatment of about 100 cases of advanced cancer of the breast with diethylstilbestrol was discussed. Dr. Frank Ellis said that correspondents in the *British Medical Journal* had drawn attention to this treatment and some radiotherapists therefore decided to try it. Cases of advanced carcinoma of the breast often came for radiotherapy, they reasoned, and if a more effective treatment could be found it was important to know it. Owing to the short period of observation, only preliminary reports could be collected. He described 31 cases, in all of which except 1 the effects of diethylstilbestrol could be noted without any complicating effects of radiation. Some were too advanced for radiotherapy; others were on the waiting list for it; and still others had passed the stage when further irradiation could be useful. The doses of diethylstilbestrol were relatively large unless the patients were intolerant. The average was 15 mg. daily. In some cases, but in none which showed improvement, the administration was followed by nausea and vomiting. Other manifestations were activity of the breasts, with pigmentation, tenderness of the areola and in some cases resumption of menstruation. Eight patients showed improvement; their average age was 67.6 years. Fifteen, with an average age of 53.5 years, became worse under treatment. Two became worse during the administration but improved, both subjectively and objectively, after it was stopped. His conclusion was that diethylstilbestrol might make the malignant condition of a younger woman worse but might have value for an older woman. It produced no improvement in bone metastasis.

Dr. S. B. Adams said that of 10 patients 4 showed improvement, 1 being a woman aged 82. In 3 cases the lesions grew in size during the treatment, though the main lesion shrank. In the first case treatment began in July 1943. Only 1 mg. of diethylstilbestrol was given daily. There was definite improvement. There was originally a deep cancer crater of the breast with diffuse infiltration of the chest wall and skin involvement. This healed, leaving a fibrous scar with two small residual nodules. The liver had enlarged since the treatment started, he said, though whether or not this was due to secondary deposits could not yet be stated.

Dr. Alexander Haddow described 13 cases, several of which had been previously treated surgically or by high voltage x-rays and had shown recurrence. Diethylstilbestrol was given in total doses varying from 75 to 676 mg. over periods of from four to twenty-four weeks. Administration was by mouth or intramuscular injection, sometimes by both. In cases responding to the treatment red lesions tended to show a purplish tinge or pallor. Small skin nodules were flattened and

occasionally disappeared. Larger nodules and masses might undergo partial regression. In these 13 cases there was continued advance of the disease in 9, temporary improvement in 3 and definite and more lasting benefit in 1. Favorable advances were much more likely in the older women, this series also demonstrated.

In the whole series recorded by various observers there were 69 patients under the age of 58, of whom 43 did not improve and none showed spectacular improvement. Of 52 over the age of 58 at least 17 improved and 6 or 7 showed spectacular improvement, amounting in some to complete disappearance of advanced disease. Prof. E. C. Dodds said that in patients over 50 it was important to determine the general systemic effect of estrogen therapy because treatment of disorders of the menopause with synthetic estrogens showed great physical and psychologic effects, and these were likely to influence the general condition of the patient with carcinoma. Professor Dodds expressed surprise at the smallness of the dosage reported by some of the observers. It seemed to him that it would have been worth while to give massive doses, he said, and he was also surprised that more powerful synthetic estrogens than diethylstilbestrol were not tried.

BRAZIL

(From Our Regular Correspondent)

July 8, 1944.

Rabies in Rio de Janeiro

At the last meeting of the Brazilian Society of Hygiene, Dr. J. P. Fontenelle, professor of public health and director of the Division of Health Information of the Rio de Janeiro City Health Department, presented a paper dealing with the rabies situation in the city. After pointing out that, according to Rosenau, human rabies was never registered in Australia, an insular country, and that the disease had been stamped out many years ago in Denmark, Sweden, Norway and the British Isles, Dr. Fontenelle said that the mortality statistics of the large cities of the United States show that the annual death rate from rabies has been at the average level of 0.03 per hundred thousand for an aggregate of more than 35 million population in the last decade. In the city of Buenos Aires, Argentina, the mortality returns for the last five years give a mean annual death rate of 0.04 per hundred thousand for a population of 2.5 million, but in Rosario, Argentina's second city, with a population of a little more than 500,000, the mean annual death rate for the last five years is 0.33 per hundred thousand. As for Brazil, Dr. Fontenelle studied the mortality from rabies for the decade 1933-1942 in nine of the largest cities, the present population of which ranges from 113,000 to 1,980,000. For eight of these cities the mean annual death rate from rabies for this period was as follows: Rio de Janeiro (40 deaths), 0.23 per hundred thousand; São Paulo (28 deaths), 0.23; Recife (28 deaths) 0.21; Salvador (8 deaths) 0.27; Porto Alegre (6 deaths) 0.23; Belo Horizonte (9 deaths) 0.47; Belem (14 deaths), 0.66, and Fortaleza (17 deaths) 1.00.

It is the opinion of the author that the control of rabies in a city like Rio de Janeiro consists mainly in the control of stray dogs, many of which are infected by the disease, which often goes unreported by laymen. During the first half of this year, out of many animals examined, 103 have been recognized as affected by rabies: 98 dogs, 3 cats, 1 monkey and 1 rabbit. Therefore it is really the dog, but usually only the "stray dog," which is a concern to the public health.

Many facilities are being offered to the population for the preventive Pasteur treatment of the victims of dog bites; all the fifteen health centers and ten of the municipal hospitals give free treatment, using the Fermi vaccine prepared at the Public Health Laboratory of the city.

Antirabic Service

In May 1930 the Instituto Pinheiros of São Paulo started an antirabic service with the following procedure:

1. The physician requests the first doses of antirabic vaccine by telegraph or telephone.
2. He receives at once a box with six doses.
3. He completes an information form giving an account of the accident and mails it back to the institute.
4. The institute classifies the severity of the case and makes further periodic remittances of recently prepared vaccine.

In remote towns the institute maintains, preferably in the local hospital in a refrigerator, a number of doses of vaccine valid for four months for the immediate beginning of treatment: These are the so-called antirabic stations, which act as follows:

1. On beginning a treatment, the station notifies the institute.
2. By return mail a fresh box of vaccine is sent to replace the one in use, together with doses for the continuation of the treatment in the case just begun.
3. Whenever the valid limit of a vaccine has expired at a station, immediate replacement is made.

The stations in very remote towns, where communication with the institute is difficult, are in contact with intermediate stations, which receive vaccines of recent preparation every week and which are able to classify the severity of the cases and provide for the continuation of treatments.

From May 1930 to June 30, 1942, 12,073 persons were treated, 695 with a vaccine of the Fermi type, in a 6 per cent suspension, phenolized at 1 per cent; 8,238 with a 5 per cent suspension; 3,140 with a 4 per cent suspension. Results are as follows: real failure, 0; false failure, 0.024 per cent; neuro-paralytic accidents, 0.008 per cent; cases of shock characterized by a syncopal state immediately after the injections, passing and without after-effect, 0.19 per cent; cases of badly characterized shock, 0.06 per cent; general reactions, 0.08 per cent. There were 205 antirabic stations on June 30, 1942, 204 stations in Brazil, and 1 in the capital of the republic of Paraguay.

The decentralized service solves the economic side of antirabic vaccination, which is of great importance in a vast country like Brazil, with difficulties in communications, and where salaries are low.

The solution of the economic problem signifies an important social attainment as it gives the benefits of science both to the individual with means, who could leave his home town and stay for weeks under treatment in a town where there is a Pasteur institute, and to persons who could not afford to travel to the place of treatment indicated.

Marriages

FRANK ERNEST PERRON JR. to Miss Jeannette Benoit, both of Manchester, N. H., in Newton, Mass., recently.

ASHBY TURNER RICHARDS, Harrisonburg, Va., to Miss Evelyn Rosaline Suter of Staunton, June 14.

HARRY HALL WOMACK JR., Fort Worth, Texas, to Miss Margaret Harris of Galveston, May 22.

DAVID L. GREENLEES, Greensboro, Ala., to Miss Ester Schreckengost of Butler, Pa., July 17.

LOUIS W. PUTZIG, Blanchard, Mich., to Miss Vera Stevens of Six Lakes in Dearborn, June 24.

JOHN TABB WALKER to Miss Evelyn Chamblin Murrell, both of Richmond, Va., July 6.

CHARLES W. IOBST, Emmaus, Pa., to Miss Barbara J. Strobel of Allentown, July 15.

KENNETH P. KNUDSON, De Forest, Wis., to Miss Ruth Higdon, May 13.

GEORGE VASH to Miss Virginia Evans, both of Hinsdale, Mass., June 28.

Deaths

Frederic Atwood Besley ☉ prominent surgeon and leader in surgical organizations, died August 16, aged 76, in the Victory Memorial Hospital, Waukegan, Ill., following a prostatectomy.

Dr. Besley was born in Waukegan, April 19, 1868. He received his early education at the Chicago Manual Training School. After graduating at Northwestern University Medical School in 1894 he served an internship and residency at Cook County Hospital until 1896. In 1900 he was named professor of surgery at the Postgraduate Medical School, Chicago, a position he held until 1908; for a year in 1901 he held a similar appointment at the Woman's Medical College of Northwestern University. In 1899 he joined the staff of Northwestern as clinical instructor in surgery, subsequently advancing through the years until 1915, when he was made professor of surgery.

During the first world war Dr. Besley served as chief surgeon of the Northwestern University Base Hospital Unit number 12. He was with the English forces soon after the entrance of the United States in the war, later serving with the American forces in France. He was commissioned as a major and was retired with the rank of colonel.

After the war Dr. Besley established in Waukegan the Besley-Waukegan Clinic. He had been a member of the staff of a number of hospitals including Cook County, Wesley Memorial and Mercy hospitals, Chicago, and the Victory Memorial Hospital, Waukegan. He was consultant to the Veterans Administration Facility, Downey.

He was a founder member of the American College of Surgeons in 1913, serving as treasurer from 1926 to 1937, president and member of the board of regents from 1937 to 1938, when he became secretary, a position he held at the time of his death. From 1926 to 1939 he was chairman of the college's committee on industrial medicine and surgery. He was also a founder member of the American Board of Surgery. In 1905, with the late Drs. Franklin H. Martin, Allen B. Kavel, John Hollister, all deceased, and Dr. William R. Cubbins, Dr. Besley served as a founder member of the editorial board of *Surgery, Gynecology and Obstetrics*, holding active membership on the board since its establishment.

He had been a member of the board of directors and treasurer and executive vice president of the Surgical Publishing Company, a member of the American Surgical Association and of the Chicago Surgical Society, serving the last group early in his career as treasurer and later president. He was also president of the Lake County Medical Society in 1930. In 1941 he was appointed a member of the Commission on Physical Rehabilitation of the Health and Medical Committee of the Federal Security Agency.

Wilbert B. Hinsdale, Ann Arbor, Mich.; Homeopathic Hospital College, Cleveland, 1887; formerly dean and professor of the theory and practice of medicine and clinical medicine at the University of Michigan Homeopathic Medical School; president of the American Institute of Homeopathy in 1913 and the Michigan Academy of Science, Arts and Letters in 1931; member of the American Association for the Advancement of Science and the Michigan State Archaeological Society; had been in charge of the Great Lakes division, University of Michigan Museum of Anthropology; health officer in Ann Arbor for many years and served as a member of the board of education; formerly medical director of the University of Michigan Homeopathic Hospital; for many years member and for five years president of the board of trustees of the Michigan Tuberculosis Sanatorium in Howell; for a long period a member of the board of trustees of the Hiram College, Hiram, Ohio; author of "Primitive Man in Michigan," "The Indians of Washtenaw County," "The First People of Michigan," "Archaeological Atlas of Michigan" and "Distribution of Aboriginal Population of Michigan"; died July 25, aged 93, of arteriosclerosis.

Lawrence Joseph Rhea, Montreal, Que., Canada; Johns Hopkins University School of Medicine, Baltimore, 1906; member of the American Association of Pathologists and Bacteriologists, the Association of American Physicians, International Association of Medical Museums, and the Canadian Medical Association; professor of pathology at McGill University Faculty of Medicine, where he was director of the Pathological Institute; assistant professor of pathology at the Harvard Medical School, Boston, 1912-1913, instructor, 1909-1910, and assistant in pathology, 1908-1909; held the rank of major during World War I, with number three Canadian General Hospital, Royal Canadian Army Medical Corps; formerly resident in pathology at the Peter Bent Brigham Hospital, Boston; director of the pathologic laboratory of the Montreal General Hospital, where he died July 3, aged 67.

Edmund F. Collins ☉ Detroit; Western University Faculty of Medicine, London, Ont., Canada, 1912; a fellow of the American College of Hospital Administrators; life member of the American Hospital Association and Michigan Hospital Association; past president of the Greater Detroit Hospital Council; treasurer and member of the board of trustees of the Michigan Hospital Service; member of the American Congress of Obstetrics and Gynecology; first associated with the Grace Hospital as assistant resident physician in 1916 and held numerous executive positions until his appointment as director in 1937; appointed treasurer of the hospital in 1943; died June 29, aged 55, of coronary thrombosis.

Adolphus William Foertmeyer ☉ Cincinnati; Medical College of Ohio, Cincinnati, 1905; also a pharmacist; assistant professor of psychiatry at the University of Cincinnati College of Medicine; member of the American Psychiatric Association and the Central Neuropsychiatric Association; since January 1942 probate court alienist; for two terms county coroner; formerly federal jail physician; served overseas during World War I; major, medical reserve corps, U. S. Army, not on active duty; on the staffs of St. Mary's, Bethesda, Christ, Jewish, Cincinnati General, Deaconess and Good Samaritan hospitals; died June 24, aged 64.

Stephen Trent Barnett ☉ Atlanta, Ga.; University of Virginia Department of Medicine, Charlottesville, 1896; past president of the Fulton County Medical Society; member of the Southern Medical Association; fellow of the American College of Surgeons; served as assistant to chair, clinical gynecology, Atlanta College of Physicians and Surgeons; professor of obstetrics and clinical gynecology at the Atlanta Medical College from 1907 to 1915; visiting gynecologist at Grady, Emory University, Crawford W. Long Memorial, Georgia Baptist hospitals and St. Joseph's Infirmary; died June 27, aged 73.

John Henry Gilpin, Cheboygan, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; member of the Michigan State Medical Society; served overseas during World War I; formerly Indiana commander of the Veterans of Foreign Wars; at one time deputy health commissioner, health commissioner, secretary of the board of health and school physician in Fort Wayne, Ind.; served as commandant of the Indiana State Soldiers' Home in La Fayette; formerly county coroner; district health officer of Cheboygan, Presque Isle, Montmorency and Alpena counties; died June 22, aged 67.

David Hartin Boyd ☉ Pittsburgh; Harvard Medical School, Boston, 1906; specialist certified by the American Board of Pediatrics, Inc.; associate professor of pediatrics at the University of Pittsburgh School of Medicine; member of the American Academy of Pediatrics; past president of the Pittsburgh Academy of Medicine; served overseas during World War I; attending pediatrician, Allegheny General, Children's and Presbyterian hospitals, Pittsburgh, and the Columbia Hospital, Wilkensburg; consulting pediatrician, Sewickley Valley Hospital, Sewickley; died July 10, aged 64.

William A. Harris, Spotsylvania, Va.; Medical College of Virginia, Richmond, 1901; member of the Medical Society of Virginia; served three terms in the general assembly as delegate from Fredericksburg and Spotsylvania County; a lieutenant colonel in the medical corps of the U. S. Army during World War I and served in France; served as county coroner, as secretary of the board of public roads and as county health officer; formerly member of the board of visitors of Virginia Polytechnic Institute; died suddenly May 25, aged 66, of coronary thrombosis.

Frederick William Adamson, Lake Worth, Fla.; Northwestern University Medical School, Chicago, 1894; drowned at West Palm Beach, June 21, aged 76.

O. Prescott Bennett, Washington, Ill.; Chicago Homeopathic Medical College, 1889; College of Physicians and Surgeons, Chicago, 1890; represented his township on the Tazewell County board of supervisors from 1928 to 1932, holding chairmanship for one year; served overseas during World War I; chief of staff of Washington Hospital; died June 21, aged 75, of coronary thrombosis.

Nicholas Francis Bray, Springfield, La.; St. Louis College of Physicians and Surgeons, 1908; member of the Louisiana State Medical Society; died June 16, aged 64, of carcinoma of the esophagus caused by injury to the neck received in an automobile accident.

Prentice M. Bristow, Stanton, Texas; University of Tennessee Medical Department, Nashville, 1905; served as city and county health officer; died in the Big Spring Hospital, Big Spring, June 12, aged 66, of carcinoma of the liver.

Ray Callis Bunch ☉ Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1916; on the staffs of the Protestant, Nashville General and Vanderbilt hospitals; died June 22, aged 53, of hypertension.

Garrard Peyton Cherry, Mangum, Okla. (licensed in Texas under the Act of 1907 and in Oklahoma by years of practice); member of the Oklahoma State Medical Association; died May 14, aged 82, of senility.

Thomas J. Costello, Seattle; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; formerly on the staff of St. Joseph's Hospital, Lewiston, Idaho; died June 18, aged 68.

Francis William Davis, New York; University of the City of New York Medical Department, New York, 1893; member of the Medical Society of the State of New York; served on the staff of the New York Hospital; died in St. Vincent's Hospital June 12, aged 82, of cerebral thrombosis and diabetic acidosis.

Charles Neilson Denison, Waldoboro, Maine; Long Island College Hospital Brooklyn, 1893; formerly health officer of Cheshire, Conn., and New Hartford, Conn.; served as a member of the staffs of the St. Mary's Hospital, Waterbury, Conn., and Miles Memorial Hospital, Damariscotta; died June 7, aged 73, of cardiac asthma.

Lloyd Byron Dochterman, Williston, N. D.; Detroit College of Medicine, 1900; member of the North Dakota State Medical Association; also a pharmacist; health officer of Williston; served during World War I; member of the library board; on the staffs of the Mercy and Good Samaritan hospitals; died June 6, aged 66, of retroperitoneal hemorrhage.

Willard F. Doolittle ☉ New York; Columbia University College of Physicians and Surgeons, New York, 1902; an Affiliate Fellow of the American Medical Association; died in St. Luke's Hospital June 5, aged 72.

Andrew Francis Downing, Cambridge, Mass.; Harvard Medical School, Boston, 1904; member of the Massachusetts Medical Society; at one time examiner for the Massachusetts Civil Service Commission; served on the staffs of the Boston Dispensary, St. Elizabeth's Hospital and the Massachusetts General Hospital, Boston, and the Cambridge City Hospital; died June 2, aged 66, of chronic myocarditis.

Ralph Orr Early ☉ Oklahoma City, Okla.; Rush Medical College, Chicago, 1901; served during World War I; died in St. Anthony Hospital June 6, aged 64, of cerebral hemorrhage.

Anthony Bartholomew Erlain ☉ Cashtown, Pa.; Laval University Faculty of Medicine, Quebec, Que., Canada, 1929; served during World War I; contract surgeon with the U. S. Army for six months; died in Pittsburgh June 2, aged 45, of coronary occlusion.

Ewing Oliphant Evans, San Antonio, Texas; Kentucky School of Medicine, Louisville, 1892; member of the State Medical Association of Texas; president of the city school board from 1918 to 1922; surgeon for the Mexican International Railroad and the Coahuila and Alamo Coal Companies from 1895 to 1902; died June 8, aged 75, of carcinoma of the colon.

George W. Fletcher, Montrose, Ark.; Memphis (Tenn.) Hospital Medical College, 1896; member of the Arkansas Medical Society; served as president of the Ashley County Medical Society; died May 23, aged 74, of chronic nephritis.

Forrest Henry Frey ☉ Wausau, Wis.; Rush Medical College, Chicago, 1913; past president and secretary of the Marathon County Medical Society; on the staffs of the Wausau Memorial Hospital and St. Mary's Hospital, where he died May 31, aged 55, of cerebral hemorrhage and chronic nephritis.

Otto Albert Gahl, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; died in the City of Chicago Municipal Tuberculosis Sanitarium, June 16, aged 61, of pulmonary tuberculosis.

Albert Mouzon Gantt, Houston, Texas; Louisville (Ky.) Medical College, 1902; member of the State Medical Association of Texas; at one time on the staff of St. Paul's Sanitarium in Dallas; died June 2, aged 68, of coronary thrombosis.

Arthur Clesson Hagedorn, Gloversville, N. Y.; Albany (N. Y.) Medical College, 1892; member of the Medical Society of the State of New York; for many years coroner of Fulton County; on the staff of the Nathan Littauer Hospital, where he died June 23, aged 75, of coronary occlusion.

Germain B. Hale, West Liberty, Ohio; Chicago Homeopathic Medical College, 1894; served as county coroner; died June 11, aged 71, of duodenal ulcer and hemorrhage.

• **George Dempster Hamlen**, Bayside, N. Y.; University of the City of New York Medical Department, 1890; at one time instructor in obstetrics and gynecology at the Cornell University Medical College and on the staff of the Bellevue Hospital in New York; died June 5, aged 77, of heart disease.

Foster Pierce Harbin, Brunswick, Ga.; Atlanta Medical College, 1914; member of the Medical Association of Georgia; associated with the Glynn County Board of Health, in charge of the mobile health unit; died June 14, aged 55, of dilatation of the heart.

Fleet Hiram Harrison ☉ Imlay, Nev.; Missouri Medical College, St. Louis, 1897; a captain in the medical corps of the U. S. Army during World War I; physician and surgeon for the Southern Pacific Railroad; at one time health officer of Alpine County, Calif.; on the staffs of St. Mary's and Washoe County General hospitals, Reno; died in the Southern Pacific General Hospital, San Francisco, June 16, aged 69, of coronary occlusion.

William Cullen Hawken ☉ Detroit; Detroit College of Medicine and Surgery, 1928; medical examiner for the board of education; on the staffs of the Mount Carmel Hospital, Receiving Hospital, St. Mary's Hospital and the Providence Hospital, where he died June 7, aged 42, of arteriosclerotic hypertension with cerebral edema.

Alexander S. Holden, Ellijay, Ga.; Atlanta Medical College, 1897; died in a hospital in Atlanta April 16, aged 78.

Gregory H. Hovnanian, Chicago; Medico-Chirurgical College of Philadelphia, 1890; died June 9, aged 80, of pulmonary tuberculosis.

Harry Newell Howe ☉ Greenfield, Mass.; Columbia University College of Physicians and Surgeons, New York, 1899; served on the draft medical advisory board during World War I; president of the Franklin District Medical Society, 1916-1917; served on the board of health and as school physician; on the staff of the Franklin County Public Hospital, where he died May 11, aged 72, of coronary thrombosis.

John Franklin Iden, Dresden, Ohio; University of Louisville (Ky.) Medical Department, 1894; member of the Ohio State Medical Association; on the staffs of the Good Samaritan Hospital and the Bethesda Hospital, Zanesville, where he died June 11, aged 75, of chronic myocarditis and generalized arteriosclerotic cardiovascular disease.

Allan Smith Ironside, Haddonfield, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1889; on the staff of the West Jersey Homeopathic Hospital, Camden; died May 31, aged 76, of chronic myocarditis, toxemia and purulent cystitis.

William Francis James, Honolulu, Hawaii; Medical Department of Tulane University of Louisiana, New Orleans, 1893; honorary member of the Hawaii Territorial Medical Association; veteran of the Spanish-American War; for many years acting assistant surgeon in the U. S. Public Health Service; died May 23, aged 83, of senility.

Paul Lemmer Jenny ☉ Pittsburgh; University of Pittsburgh School of Medicine, 1928; instructor in physical therapy at his alma mater; on the staffs of the Passavant and Elizabeth Steel Magee hospitals; died May 28, aged 43, of cerebral embolism.

Reuel Hammond Jones ☉ New Carlisle, Ohio; Ohio Medical University, Columbus, 1905; died May 17, aged 68, of fibrosarcoma.

Jerome Howard King, Mansfield, Ohio; Cleveland Medical College, Homeopathic, 1894; formerly county coroner; died May 13, aged 74.

Andrew Jackson Kismer, Natchez, Miss.; Memphis (Tenn.) Hospital Medical College, 1910; died June 1, aged 58, of chronic myocarditis and myocardial degeneration.

William Carroll Lindsay, Kellogg, Idaho; Northwestern University Medical School, Chicago, 1910; member of the Idaho State Medical Association; past president of the Shoshone County Medical Society; served as a member of the department of law enforcement; served as health officer of Kellogg; formerly health officer of Shoshone County; on the staff of the Providence Hospital, Wallace, where he died June 4, aged 61, of hemorrhage due to gastric ulcer.

Luther M. Linker, Elmira, Ill.; Louisville (Ky.) Medical College, 1895; died June 14, aged 77, of mucous colitis.

Harold Baughman Miller, Lincoln, Neb.; Jefferson Medical College of Philadelphia, 1890; also a pharmacist; formerly professor of materia medica and therapeutics and electrotherapeutics at the Nebraska College of Medicine; member of the

medical staff of the Security Mutual Life Insurance Company; on the staff of St. Elizabeth Hospital, where he died May 22, aged 82, of uremia and renal insufficiency.

Thomas Franklin Petway, Atlanta, Ga.; Atlanta School of Medicine, 1909; member of the Medical Association of Georgia; died in the Crawford W. Long Hospital May 22, aged 65, of acute pyelonephritis.

William A. Repp Ⓢ Detroit; Detroit College of Medicine, 1895; also a pharmacist; formerly associate professor of gynecology at his alma mater; fellow of the American College of Surgeons; a founder and consulting gynecologist of the Florence Crittenton Home; attending physician and surgeon to St. Vincent Orphan Asylum; chief consultant at St. Mary's Hospital, where he was a member of the staff for more than fifty years and where he died June 19, aged 71, of cardiac thrombosis.

Arthur W. H. Seiple, Larned, Kan.; Southern Homeopathic Medical College, Baltimore, 1898, member of the Kansas Medical Society; died in St. Rose Hospital, Great Bend, May 10, aged 74, of uremia, prostatic obstruction and diabetes mellitus.

Warren Seabury Simmons, Long Island City, N. Y.; College of Physicians and Surgeons, New York, 1892; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; adjunct professor of anatomy at the Long Island College Hospital, Brooklyn, from 1904 to 1914; served on the staffs of the Bushwick, Swedish and St. John's hospitals in Brooklyn; died May 2, aged 77, of heart disease.

David English Smith Ⓢ Bonne Terre, Mo.; Washington University School of Medicine, St. Louis, 1914; Army Medical School, 1917; formerly a major in the medical corps of the U. S. Army; chairman of the staff, Bonne Terre Hospital; died May 5, aged 55.

Robert Thomas Stearns, Scituate, Mass.; Harvard Medical School, Boston, 1902; died April 20, aged 68.

Charles Frank Sullivan, Houston, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, Fort Worth, 1918; died May 23, aged 54.

Walter Lee Swindell, Swanquarter, N. C.; Baltimore Medical College, 1908; deputy health officer of Hyde County; physician for the local draft board; died June 12, aged 65, of heart disease.

Theodore Evelyn Townsend, Westwood, N. J.; Long Island College Hospital, Brooklyn, 1891, served as a member of the staff of the Hackensack Hospital, Hackensack, where he died June 18, aged 74, of carcinoma of the pancreas.

Frank Landale Tucker, Brooklyn; College of Physicians and Surgeons, New York, 1891; senior surgeon and formerly member of the board of directors of the Brooklyn Eye and Ear Hospital; died May 28, aged 77, of intradermal carcinoma of the foot.

James Arthur Tucker Ⓢ Baton Rouge, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1904; for many years attending surgeon to the Louisiana State University and the Louisiana State School for the Deaf; on the staffs of Our Lady of the Lake Sanitarium and Baton Rouge General Hospital; died May 8, aged 65.

Edward Joseph Tulleys, South Salem, Ohio; the Hahnemann Medical College and Hospital, Chicago, 1899; member of the Ohio State Medical Association; on the staff of the

Chillicothe Hospital, Chillicothe, where he died June 1, aged 69, of cerebral hemorrhage.

Maud M. Foy Uhl, Glendale, Calif.; University of Buffalo School of Medicine, 1891; died May 2, aged 76, of chronic myocardial degeneration.

McClellan Vance, London, Ohio; Eclectic Medical Institute, Cincinnati, 1887; died May 8, aged 82, of cerebral hemorrhage.

Maurice B. Van Cleave, Terre Haute, Ind.; Hering Medical College, Chicago, 1900; member of the Indiana State Medical Association; past president of the Vigo County Medical Society; served as city health officer; past president of the staff of St. Anthony's Hospital; died June 11, aged 69, of organic heart disease and coronary sclerosis.

Charles Emmett Walker Ⓢ Sanatorium, Miss.; University of Tennessee College of Medicine, Memphis, 1916; served in France during World War I; assistant superintendent of the Mississippi State Tuberculosis Sanatorium; died June 26, aged 54, of coronary thrombosis.

Robert F. Wells, Manchester, Md.; Baltimore Medical College, 1892; died June 1, aged 78, of peritonitis and gangrene of the cecum.

Betty Whitson, Boise, Idaho; Washington University School of Medicine, St. Louis, 1941; interned at the Flower

and Fifth Avenue Hospitals in New York; resident physician at the Medical Center of Jersey City, N. J., where she died May 20, aged 32.

Hal Drummond Wilmeth, Barnston, Neb.; Lincoln Medical College, Eclectic, 1916; died in the Veterans Administration Facility, Knoxville, Iowa, May 4, aged 52, of coronary occlusion.

Thomas L. Wilson, Bellwood, Pa.; College of Physicians and Surgeons, Baltimore, 1891; member of the Medical Society of the State of Pennsylvania; for many years Bellwood councilman and medical examiner for Bellwood borough and Antis township schools; died May 7, aged 81, of hypostatic pneumonia.



CAPT. HARRY P. SINGLEY, M. C.,
A. U. S., 1909-1944



LIEUT. (JG) MARTIN H. BRAUN
(MC), U.S.N.R., 1914-1943

Manoug Garabet Yardume, Boston; Harvard Medical School, Boston, 1900; served as medical consultant for the John Hancock Insurance Company; associated with the Massachusetts General, Faulkner and Peter Bent Brigham hospitals; died June 19, aged 72, of angina pectoris.

KILLED IN ACTION

Martin Herman Braun, Kew Gardens, N. Y.; Howard University College of Medicine, Washington, D. C., 1940; interned at the Harlem Hospital in New York; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on June 12, 1942; aged 29; declared missing in action on Nov. 12, 1942; killed in action in the Atlantic area; presumptive date of death Nov. 13, 1943, according to the Navy Department.

Harry Paul Singley, Ventnor, N. J.; Jefferson Medical College of Philadelphia, 1936; member of the Medical Society of New Jersey; served an internship at the Western Pennsylvania Hospital, Pittsburgh; commissioned a first lieutenant in the medical corps, Army of the United States, on June 13, 1942; later promoted to captain; killed in the invasion of France, June 6, aged 34.

Bureau of Investigation

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

Following are abstracts of stipulations in which promoters of "patent medicines," medical devices and cosmetics have agreed, following action by the Federal Trade Commission, to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products:

Athygienic Foot Powder and Athygienic Foot Glove.—That these products are remedies for corns or foot ailments generally were misrepresentations which the Wilson Industries, Inc., of Chicago agreed to eliminate from their advertising in a stipulation that they entered into with the Federal Trade Commission in October 1943.

Blue Bonnet Mineral Water Crystals.—This product is sold by Zeta M. Pack, trading as Loyal Distributing Company, Wheeling, W. Va. In September 1943 this person stipulated with the Federal Trade Commission that she would cease representing that the preparation will correct excess acidity, build up the system, keep the body healthy, or help one to regain good health; that it will increase resistance to colds, grippe and other ailments, insure good appetite or sound sleep or restore energy; that it will be beneficial for conditions of fatigue, listlessness or lack of "pep," or rid the system of, or keep it free from, poisons. She further agreed to discontinue any advertisement which represented that the product is in all cases harmless, or which failed to reveal that it should not be taken by persons suffering from abdominal pain or other symptoms of appendicitis; provided, however, that such advertisements need only contain the statement, "Caution: Use only as directed" if the label instructions for use include a warning to the same effect.

Dar-Sal.—This is a dehydrated product of goat's milk put out by J. F. Darrington, trading as Darrington's, Marshfield, Ore. In September 1943 Darrington stipulated with the Federal Trade Commission to cease representing that Dar-Sal is made by a secret process or possesses unique or special properties which are not present in other dehydrated products of goat's milk; that it has any value when used in connection with the treatment of run-down conditions, nervous disorders, stomach trouble, eczema, asthma, hyperacidity, rheumatism, paralysis or arthritis; that it is a cold preventive or will improve the user's health or build up his resistance to infectious diseases.

Dr. Carolus M. Cobb's Nasal Spray for Sinus Relief.—That this will relieve sinus trouble or the pain of headaches associated therewith, or open the sinus passages, were misrepresentations which Estelle Cobb Brown, East Lynn, Mass., agreed to eliminate from the advertising in a stipulation that she entered into with the Federal Trade Commission in September 1943.

Dr. True's Elixir.—In September 1943 the Federal Trade Commission accepted a stipulation from Dr. J. F. True & Company, Inc., Auburn, Maine, and its advertising agency, the S. A. Conover Company, Boston, in which these concerns agreed to discontinue any advertisement which failed to reveal that the "Elixir" should not be used in the presence of symptoms of appendicitis, such as abdominal pain, nausea or vomiting. The stipulation permitted, however, that such advertisements need contain only the statement, "Caution: Use only as directed" if the same warning were included in the directions on the label. In an earlier case (June 1937) the True concern had stipulated with the Commission that it would no longer advertise that the product was useful in treating ordinary ailments of children, and would safeguard health, gave children double protection, and contained no harmful ingredients.

"My Own Story of My Diabetes."—This is the title of a publication sold by George V. Harnetty, San Diego, Calif. In September 1943 Harnetty stipulated with the Federal Trade Commission to cease representing that by reading this work, a person "can learn a cure for diabetes." He further agreed not to publish or cause to be published any advertisement concerning this publication which would fail to reveal the material fact that the treatment referred to in the advertisement involves the use of a chemical or drug which will have irritant effects and may seriously interfere with the proper functioning of injured or diseased kidneys, and that its prolonged use may injure kidneys that are normal.

Vi-Mins and Vita-Food.—These are two names for one product put out by V. E. Michael of Ashtabula, Ohio. In October 1943 he stipulated with the Federal Trade Commission that he would no longer represent in his advertising that the preparation is the most complete vitamin or mineral product ever offered for sale; that it insures a vigorous personality, a disease-resisting body, good teeth and a clear complexion; that it improves eyesight, relieves fatigue, reduces nervousness and aids digestion; that it prevents sinus trouble, catarrh, headaches, arthritis, rheumatism and ailments of the liver, kidneys and heart, and assists in overcoming excess weight and preventing infection from entering the body.

Correspondence

DUSTING POWDER FOR SURGICAL GLOVES

To the Editor:—In THE JOURNAL, Dec. 11, 1943, in a study of possible substitutes for talcum powder, Verda, Kidd and I stated that potassium bitartrate was a satisfactory dusting powder but that it tended somewhat to shorten the life of rubber gloves. This statement is subject to correction. We found later, after changing the brand of glove we had been using, that there was no determinable deteriorating influence on the life of the glove. We were prompted to investigate this particular phase of the work by a personal communication to us from the Research Laboratory of the Wilson Rubber Company, stating that a very carefully checked set of experiments made by the laboratory failed to reveal any adverse effect of potassium bitartrate on either latex or pure gum rubber gloves.

A second point of importance that we set out in our paper is the impossibility of using starch as a dusting powder because of the gelatinization resulting from the reaction of starch to steam sterilization. Since the publication of our paper, the Research Laboratories of the Corn Products Refining Company have cooperated with us most kindly and most enthusiastically in the attempt to overcome the gelatinizing property of starch. They have finally developed, by the application of new processes, recently developed by them, a special starch dusting powder that does not gelatinize when subjected to boiling or to steam sterilization and that has no deteriorating effect on the gloves. We have been using a sample of this new starch dusting powder for twelve weeks in the operating rooms of the Barnard Free Skin and Cancer Hospital and have found that it meets all clinical requirements. Both the surgeons and the operating room personnel have found it thoroughly satisfactory. Experiments on animals showed this new starch dusting powder to be totally innocuous.

This new starch dusting powder, unfortunately, cannot yet be furnished for general use, because current difficulties with equipment priorities may preclude its manufacture in quantity until after the war. In the meantime we have been receiving such favorable reports concerning the potassium bitartrate powder that we advise its substitution for talcum until such time as the new starch can be produced in quantity. Talcum cannot be removed from the operating room at too early a moment.

M. G. SEELIG, M.D., St. Louis.

Director of pathology, the Barnard
Free Skin and Cancer Hospital.

SULFADIAZINE IN NASOPHARYNGITIS

To the Editor:—Regarding the article "Sulfadiazine in the Treatment of 200 Cases of Acute Catarrhal Nasopharyngitis" by Capt. F. B. Faust and Capt. J. H. Simmons in THE JOURNAL, June 24, page 552, "hospital days" as a determining factor in the response of a disease to a therapeutic agent is an extremely loose one, especially in a station hospital in the Army.

Many patients who would normally be considered cured and discharged are often maintained as patients because of technical or administrative reasons. As a result, statistics solely based on hospital days in an army installation may not be entirely accurate.

Furthermore, it is doubtful that the degree of morbidity of nasopharyngitis can be based solely on the extent of temperature elevations. Many nasopharyngitis patients have acute symptoms and appear severely ill in the presence of normal temperatures or slight elevations above normal.

Even assuming for the sake of argument that hospital days could be accepted as reliable criteria for determining therapeutic results, the only important conclusion that could possibly be reached from the authors' statistics is omitted, viz that the routine administration of sulfadiazine is without value in the treatment of nasopharyngitis, which fact is generally accepted by most clinicians. This conclusion might be drawn from the following statement from the article in question: 'The total hospital days in the series treated with sulfadiazine was 648 days. The total hospital days in the control series was 462 days. The average number of days was 5.6 for both series.'

DOVID H. ATLAS, Captain, M. C., A. U. S.
LOUIS R. HOTT, Major, M. C., A. U. S.

Society Proceedings

COMING MEETINGS

- Aero Medical Association of the United States, St. Louis, Sept. 4-6. Dr. David S. Brachman, 5440 Cass Ave., Detroit 2, Secretary.
- American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 8-12. Dr. W. I. Benedict, 107 Second Ave. S.W., Rochester, Minn., Secretary.
- American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 7-9. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.
- American Congress of Physical Therapy, Cleveland, Sept. 6-9. Dr. Richard Kovacs, 2 East 88th St., New York 28, Secretary.
- American Hospital Association, Cleveland, Oct. 2-6. Mr. George P. Bugbee, 18 East Division St., Chicago, Executive Secretary.
- American Pediatric Society, Atlantic City, N. J., Sept. 25-27. Dr. Hugh McCulloch, 325 N. Euclid Ave., St. Louis 8, Secretary.
- American Public Health Association, New York, Oct. 3-5. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.
- American Roentgen Ray Society, Chicago, Sept. 24-29. Dr. H. Dalmeier, University Hospitals, Iowa City, Secretary.
- Colorado State Medical Society, Denver, Sept. 27-29. Dr. John S. Bouslog, 537 Republic Bldg., Denver 2, Secretary.
- Delaware Medical Society of, Lewes, Sept. 11-12. Dr. W. O. La Motte, 601 Delaware Avenue, Wilmington, Secretary.
- District of Columbia Medical Society of the Washington, Oct. 2-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Secretary.
- Indiana State Medical Association, Indianapolis, Oct. 3-5. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis 4, Executive Secretary.
- International College of Surgeons, U. S. Chapter, Philadelphia, Oct. 3-5. Dr. Desiderio Roman, 250 South 17th St., Philadelphia, Secretary.
- Kentucky State Medical Association, Lexington, September 18-20. Dr. P. E. Blicherby, 620 S. Third St., Louisville, Secretary.
- Michigan State Medical Society, Grand Rapids, Sept. 27-29. Dr. L. Fernold Foster, 2020 Olds Tower, Lansing 8, Secretary.
- Mississippi Valley Medical Society, Peoria, Ill., Sept. 27-28. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.
- Oregon State Medical Society, Portland, Sept. 2-3. Dr. Thomas D. Robertson, St. Vincent's Hospital, Portland, Secretary.
- Pennsylvania Medical Society of the State of Pittsburgh, Sept. 19-21. Dr. Walter F. Donaldson, 500 Penn. Ave., Pittsburgh 22, Secretary.
- Radiological Society of North America, Chicago, Sept. 24-29. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse, N. Y., Secretary.
- Wisconsin State Medical Society of, Milwaukee, Sept. 18-20. Mr. Charles H. Crownhart, 110 F. Main St., Madison 3, Secretary.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Statutory Restrictions on Advertising by Physicians Valid—A law enacted in Maryland in 1943 (Acts, 1943, c. 600) prohibits physicians from advertising. However, the law permits a physician (1) to use a personal professional card not larger than 3½ by 2 inches, on which may be printed his name, title, address, specialty, telephone number and office hours, (2) to mail to bona fide patients a removal notice not larger than 5 by 7 inches containing the information permitted on a personal professional card and (3) to exhibit on the building in which his office is located not more than two signs on which may be placed his name and degree, the letters of which shall not exceed 3 inches square and to exhibit such a sign on the door of his office. A physician violating the provisions of the law is subject to a fine of from \$50 to \$300 for each offense. The law also denominates a violation of its provisions unprofessional conduct, which, in turn, is one of the causes set out in the medical practice act for the revocation of a license to practice medicine.

Davis, a licensed physician and who prior to the enactment of the 1943 law customarily advertised his skill in the treatment of venereal diseases, brought suit against the state of Maryland and certain individuals constituting the State Board of Medical Examiners for a declaratory judgment that the 1943 statute was unconstitutional. Since he had ceased to advertise, he alleged, because of the prohibition of the statute his professional income had been cut in half. The statute was unconstitutional, he claimed, because (1) it was not a valid exercise of the police power of the state but deprived him of his property without due process of law and (2) it was arbitrary and discriminatory and deprived him of the equal protection of the laws guaranteed by the federal constitution. A demurrer was interposed by the defendants, based on the theory that a state is immune from suit by an individual. The trial court offered Davis an opportunity to amend his bill of complaint so as to eliminate the state of Maryland as a party and on his refusal to amend sustained the demurrer and dismissed the bill. Davis then appealed to the Court of Appeals of Maryland.

The appellate court first discussed the propriety of using the declaratory proceeding to test the constitutionality of a statute and held that it was proper under the circumstances present in this case. The court next discussed the question as to whether or not the immunity of a state from suit is modified by the enactment of legislation providing for declaratory judgments, holding that even in a declaratory judgment proceeding the state is immune from suit and that hence the action of the trial court was proper in dismissing the bill of complaint because the state was made a party defendant to the proceedings.

Even though, for this reason alone, affirmation of the decree adverse to Davis was required, the court undertook to discuss the constitutional questions raised by Davis. The right to carry on any lawful business, trade or calling, said the court, is subject to regulation by the legislature under the police power of the state whenever necessary to promote in some degree the public health, morals or welfare. The legislature in enacting the statute in question aimed to aid in maintaining the high standard of ethics of physicians. The state has the power to see that only persons with special training and skill shall undertake the difficult and responsible duties of dealing with the health and lives of the people. The state is vitally concerned in attracting young people of ability to the practice of medicine and also in making it possible for those who are engaged in practice to survive without facing unreasonably com-

petition, thus leaving them free to improve their qualifications without the necessity of devoting a large part of their time and effort to ruthless competitive pursuit for patients. The Maryland legislature determined that physicians of mediocre ability are likely to make up for lack of genuine merit by knowledge of mass psychology and skill in appealing to the emotions and hopes of the uninformed and credulous. Under the traditional method of professional advancement as a result of recommendations of satisfied patients, the progress of a practitioner may be slow but it bears more relation to merit, whereas mediocre practitioners who advertise extensively can obtain new patients by clever publicity as fast as the discovery of their mediocrity causes the loss of patients. It is well established that the state may lawfully forbid any advertising by medical practitioners that solicits patronage for the advertisers. *Laughney v Maybury*, 145 Wash 146, 259 P 17. The legislature continued the court, had the right to determine, and did determine, that the public interest would be injuriously affected by unseemly competition of physicians for patients without any restraint as to methods of advertising and that the regulation of advertising by physicians is necessary for the public health, morals and welfare.

Davis argued that he was not objecting to a law prohibiting deceptive advertising or schemes to take advantage of the public, or to advertisements offering professional superiority, guaranteed work or free examinations. He contended, however, that the restrictions imposed by the 1943 act are stricter than are necessary for the public health, morals or welfare. As illustrative of the type of advertising prohibited by the 1943 act but which advertising he contended should be permitted he exhibited one of his advertisements reading as follows:

Do you suffer from gland troubles? Call today and get my honest opinion of your condition. Thousands are sick and ailing from neglect. Call today and start yourself on the road to health. One visit may save you many years of worry. Charges moderate. Terms for all.

Necessarily, answered the court, there are limits to the valid exercise of the police power of the state. Otherwise the state legislature would have unbounded power and the constitutional restrictions would be meaningless, since it would be enough to say that any piece of legislation was enacted for the purpose of conserving the health, morals or welfare of the people. If, therefore, a statute designed for the public health, morals or welfare has no real or substantial relation to those objects or is a manifest invasion of rights secured by the fundamental law, it is the duty of the court to adjudge accordingly and thereby give effect to the constitution. But the police power is broad in scope and the legislature is vested with large discretion to determine not only what is injurious to the health, morals or welfare of the public but also what measures are necessary or appropriate for the protection of those interests. The exercise of the police power may inconvenience individual citizens, increase their labor or decrease the value of their property. The courts will not interfere with the exercise of power except where the regulations are arbitrary, oppressive or unreasonable. The wisdom or expediency of the regulations is not subject to judicial review. Of course, the police power is subject to the limitations imposed by the state and federal constitutions on every power of government, and the legislature will not be allowed to invade the fundamental liberties of the citizen. But unless regulations are so utterly unreasonable and extravagant in their nature that the personal and property rights of the citizen are interfered with or destroyed unnecessarily and in a wholly arbitrary manner without due process of law, they do not extend beyond the power of the legislature to enact and they form no subject for interference by the court. Applying this test, we find that the statute under review is a valid exercise of the police power of the state.

Davis contended, lastly, that the 1943 act was an unconstitutional discrimination because the restrictions on advertising set forth in that act are limited to physicians and do not extend to other professional classes. The state, said the court, is not bound to deal alike with all these classes or to strike at all evils at the same time or in the same way. It can deal

with the different professions according to the needs of the public in relation to each. The decree of the trial court dismissing the complaint was accordingly affirmed—*Davis v State*, 37 A (2d) 880 (Md, 1944).

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

EXAMINING BOARDS IN SPECIALTIES

Examinations of the Examining Boards in Specialties were published in THE JOURNAL, Aug 19, page 1155

BOARDS OF MEDICAL EXAMINERS

- ALABAMA Montgomery, Oct 24-26 Sec, Dr B F Austin, 519 Dexter Ave., Montgomery
- ALASKA Juneau, September 5 Sec, Dr W M Whitehead, Box 561, Juneau
- ARIZONA * Phoenix, Oct 3-4 Sec, Dr J H Patterson, 826 Security Bldg., Phoenix
- DELAWARE Dover, Oct 10-12 Sec, Medical Council of Delaware, Dr J S McDaniel, 229 S State St., Dover
- DISTRICT OF COLUMBIA * Washington, November Sec, Commission on Licensure, Dr G C Ruhland, 6150 E Municipal Bldg., Washington
- IDAHO Boise, Jan 8-11 Dir, Bureau of Occupational Licenses Mrs Lela D Painter, 355 State Capitol Bldg., Boise
- ILLINOIS Chicago, Oct 10-12 Supt of Registration, Department of Registration and Education, Mr Philip Harman, Springfield
- INDIANA Indianapolis, Jan 3-5 Exec Sec, Board of Medical Registration and Examination, Miss Ruth V Kirk, 301 State House, Indianapolis 4
- IOWA * Iowa City, Sept 25-27 Dir Division of Licensure and Registration, Mr H W Grefe, Capitol Bldg., Des Moines
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- LOUISIANA Sept 7-9 Sec, Dr R B Harrison, 1507 Iberna Bank Bldg., New Orleans
- MICHIGAN * Detroit, Sept 25-27 Sec, Board of Registration in Medicine, Dr J E McIntyre, 100 W Allegan St., Lansing 8
- MINNESOTA * Minneapolis, Aug 29-31 Sec, Dr J F Du Bois, 230 Lowry Medical Arts Bldg., St Paul
- MISSOURI St Louis, Sept 18-20 Sec, State Board of Health, Dr James Stewart, State Capitol Bldg., Jefferson City
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- WISCONSIN * Endorsement Milwaukee Sept 18-19 Sec, Dr C A Dawson, Tremont Bldg., River Falls

* Basic Science Certificate required

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Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Cincinnati

27:467-588 (May) 1944

- Leiomyoma of Iris: Case Report W. T. Davis, E. Sheppard and W. J. Romejko.—p. 467.
Suppression Amblyopia H. S. Sugar.—p. 469.
Extradural Diploic Epidermoids Producing Unilateral Exophthalmos E. H. Thornhill and B. Anderson.—p. 477.
*Congenital Cataract and Other Anomalies Following German Measles in Mother. A. B. Reese.—p. 483.
Metabolism of Cornea: Studies on Oxygen Consumption of Corneas of Riboflavin and Vitamin A Deficient Rats O. S. Lee Jr. and W. M. Hart.—p. 488.
*Use of Tyrothricin, Bacterial Extract, in Treatment of Marginal Ulcers of Cornea S. Bloomfield.—p. 500.
Exophthalmic Ophthalmoplegia: Report of Case with Thyrotoxicosis of Unusually Long Duration I. D. Fagin R. W. Pagel and H. H. Sand.—p. 504.
Duties and Training of Orthoptic Technician W. B. Lancaster.—p. 515.
Treatment of Asthenopia—Nonpathologic and Nonrefractive in Origin R. H. Pino and Greta L. Hultin.—p. 520.

Congenital Cataract Following German Measles in Mother.—Reese directs attention to a report from Australia of an epidemic of German measles and the occurrence of congenital cataract and other anomalies in infants born to mothers who had German measles during gestation. He cites 3 cases observed in New York within the past few months. All 3 of Reese's patients had congenital cataracts and congenital heart lesions. All mothers contracted German measles within the first month of pregnancy, which was during a rather severe epidemic of German measles in the East. The following questions present themselves in connection with these anomalies: 1. Is the infection of the mother German measles? 2. Why hasn't the occurrence of congenital anomalies in the children so infected been noted before? 3. Are the congenital anomalies which are now appearing the result of a more virulent type of German measles or of an altered type, which may have gained access to this country through an increased traffic with Australia? 4. Has the cause and effect relationship between other infections of the mother in the first three months of pregnancy and congenital anomalies existed in the past but has not been recognized? 5. Can prophylactic measures be taken to prevent pregnant women from contracting German measles during the first three months of pregnancy? 6. Should abortion be induced in pregnant women who contract exanthems in the first three months of pregnancy?

Tyrothricin in Treatment of Marginal Ulcers of Cornea.—According to Bloomfield the most frequent type of marginal ulcer of the cornea is that associated with the more severe catarrhal conjunctivitis. In these cases the keratitic complication is considered an extension of the septic process in the conjunctiva. Treatment with the usual antiseptics, occasionally supplemented by cauterization of the corneal lesion, usually results in rapid healing of the ulcer. Another group of marginal corneal ulcers, which is common in old people, is not associated with conjunctival inflammation. These arise as marginal, subepithelial infiltrates which coalesce and break down to form superficial erosions crescentic with the limbus. Local ciliary injection is usually present. Such superficial ulcers usually heal readily when antiseptic applications or cauterization and pressure dressings are employed. At the author's hospital 4 patients with this type of corneal ulcer were recently treated with tyrothricin because the ulcer was refractory to the usual treatments. Tyrothricin, a stable mixture of gramicidin and tyrocidine, is prepared from cultures of *Bacillus brevis*, a saprophyte found in sewage and soil. The poor absorbability and highly potent bacteriostatic action render it a safe and

effective antiseptic against gram positive organisms by topical administration or the irrigation of infected body cavities. Tyrothricin was used with gratifying results in 4 cases of corneal ulcer. The drug appears to be an effective therapeutic agent in this condition. It may be safely applied to the conjunctival sac in effective concentrations.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

51:537-668 (May) 1944

- Diagnosis of Bronchiectasis in Young Adults: Prebronchographic Roentgen Manifestations Observed Among Military Personnel, W. A. Evans Jr and L. J. Galinsky.—p. 537.
Ornithotic Pneumonia. A. Melamed and J. M. Fine.—p. 548.
Primary Cancer of Lungs K. L. Mitten and N. M. Hardisty.—p. 555.
Roentgen Visualization of Tumors of Cardia M. G. Wasch and B. S. Epstein.—p. 564.
Partial Paralysis of Hemidiaphragm. H. Abeles and G. C. Leimer.—p. 572.
Roentgenologic Changes in Esophagus in Tuberculous Mediastinitis. L. E. Hawes.—p. 575.
Correlation of Roentgenologic and Gastroscopic Examinations from Standpoint of Gastroenterologist R. J. F. Reushan.—p. 585.
Common Congenital Anomalies of Bony Thorax. L. K. Sycamore.—p. 593.
Importance of Roentgen Examination in Diagnosis of Adenoma of Prostate A. Pereira.—p. 600.
*Metastasis to Bone as First Symptom of Cancer of Gastrointestinal Tract: Report of 3 Cases. E. J. Bertin.—p. 614.
Neurofibromatosis of Bone M. M. Friedman.—p. 623.
Gas in Fetal Circulatory System as Sign of Intrauterine Fetal Death. J. B. Roberts.—p. 631.
Dislocation of Hip Associated with Spina Bifida. L. Nathanson and A. Lewitt.—p. 635.
Werner's Syndrome. S. T. Herstone and J. Bower.—p. 639.

Bone Metastases as First Sign of Cancer of Gastrointestinal Tract.—Bertin points out that cases in which bone metastasis is the first sign are rare. Three persons sought relief from symptoms caused by bone involvement. None of these patients presented important symptoms referable to the gastrointestinal tract. In 1 case an earlier diagnosis might have been made if bleeding from the rectum which occurred at intervals over a period of five years had been carefully investigated. In 2 cases there was nothing in the history or examination to suggest the presence of a deep seated malignant disease. In 1 case the metastatic lesion of the rib was painless at the time the chest roentgenogram was made. The bone lesions in the other 2 cases were moderately painful and showed definite tumor formation. Cancer of the digestive tract was not suspected in any of the 3 cases. The probable location of the primary growth was suggested by the microscopic examination. Gastrointestinal x-ray studies were made only after the pathologic diagnosis of adenocarcinoma had been made, and in each case the primary growth was found in the gastrointestinal tract; once in the stomach and twice in the sigmoid colon. Many of these cases are missed because it is usually not practical to make a complete x-ray examination of the entire osseous system unless there is a suspicion or sign or symptom suggesting bone involvement. The 3 cases were discovered in a series of 186 cases of carcinoma of the gastrointestinal tract over a period of ten years.

Archives of Internal Medicine, Chicago

73:365-432 (May) 1944

- Bagasse Disease of Lungs W. A. Sodeman and R. L. Pullen.—p. 365.
*Diffuse Isolated Myocarditis Associated with Dietary Deficiency. W. E. Torsen.—p. 375.
*Fatal Spontaneous Potassium Intoxication in Patients with Uremia. J. F. Marchand and C. A. Inch.—p. 384.
Vitamins A, B and C in Diabetic Children. H. O. Mosenthal and W. C. Loughlin.—p. 391.
Experimental Hypoproteinemia and Edema: Studies of Intestinal Absorption and Intestinal Roentgenologic Characteristics. A. J. Beams, A. H. Free and J. R. Leonards.—p. 397.
Bronchospasm Associated with Pulmonary Embolism: Respiratory Failure. N. H. Boyer and J. J. Curry.—p. 403.
Urinary Excretion of Nicotinic Acid and Its Derivatives. G. A. Goldsmith.—p. 410.
*Subacute Endocarditis Associated with Infection with *A. Spirillum*. W. M. Hitzig and Ada Liebesman.—p. 415.
Salmonella Cholerae Suis Meningitis: Report of Case and Review of Literature on Salmonella Meningitis. E. R. Niter.—p. 425.

Myocarditis Associated with Dietary Deficiency.—The subject of Torsen's report was a girl aged 15 years with a history of prolonged malnutrition who died of a diffuse isolated myocarditis. Heart disease was known to have existed for at

least six months before death. Severe failure of the right side of the heart was progressive; left bundle branch lesion, heart block and ventricular fibrillation preceded death. The heart showed dilatation and hypertrophy with acute, subacute and chronic, noninfective inflammatory lesions diffusely distributed throughout the myocardium. The lesions were most extensive in the inner third of the myocardium, and in places they encroached on the endocardium. Mural thrombi were found in both auricles and in both ventricles. The possibility that the myocardial lesions may have been incited by prolonged dietary deficiency is suggested by the history of prolonged malnutrition. Deficiency of thiamine is particularly suspected.

Fatal Spontaneous Potassium Intoxication in Uremia.—Marchand and Finch report 2 cases in which potassium intoxication resulted from oliguria and failure of renal excretion. No potassium was given other than that contained in the diet and in the blood which was transfused into the first patient. The second patient did not have a blood transfusion and took no food during the week before death. The failure in excretion of potassium resulted in an increase in the concentration of potassium in the serum to 9.8 and 10.1 milliequivalents, while the concentration in the pericardial fluid was 9 and 8.8 milliequivalents and that in the spinal fluid 4.5 milliequivalents per liter at death. Serial electrocardiograms showed the characteristic changes leading to cardiac arrest by the action of potassium, including evidence of auricular arrest and progressive delay of conduction in the ventricles. The symptoms were those of uremia. Consciousness persisted up to the time of death in the first case but became clouded in the second case. In the first case the intravenous injection of a solution of calcium gluconate resulted in transient restoration of regular rhythm. The cessation of respiration in each case was preceded by circulatory failure, and there was evidence that the heart was arrested in diastole. In each of these cases the development of a high concentration of potassium in the serum was associated with failure of renal excretion sufficient to produce other evidence of azotemia. There was no indication of any toxic effect from potassium until after the interval of oliguria, and it is evident that there was no significant failure in excretion of potassium until after failure of water excretion had begun. The three sources from which the high concentration of potassium in the serum appears to have been derived were diet, red cells introduced by transfusion of blood and tissue metabolism. Of these the last in itself has regularly sufficed to cause death of animals with experimental anuria. In the second case the elevated level of potassium appears to have been derived largely from tissue metabolism, since no transfusion was given and no food was taken in the last week of life.

Subacute Endocarditis Associated with Spirillum Infection.—Hitzig and Lieberman observed an unusual case of subacute endocarditis in which the causative micro-organism was *Spirillum minus*. This organism was isolated six times from the blood in dextrose and tomato bouillon and grown in an atmosphere of 3.5 per cent carbon dioxide. Its relation to the causative organism of rat bite fever was established by its morphologic characteristics, its pathogenicity and serologic effects in man and its invasiveness for mice. Despite the unusual micro-organism, the clinical course and the changes observed at necropsy were strikingly similar to those observed in cases of the common form of subacute bacterial endocarditis due to *Streptococcus viridans*. The classic features observed in this case were low grade fever with occasional increases in temperature, endocardial murmurs, splenomegaly, multiple visceral and subcutaneous embolization, microscopic hematuria, petechiae, Osler and Janeway lesions and subarachnoid hemorrhage as terminal event. That the endocarditis was subacute was clearly established by its long duration, i. e. an interval of nineteen weeks from the earliest febrile episode to the termination of the illness. The isolation of *Spirillum minus* from the blood culture led to speculation as to the cause and pathogenesis of the endocarditis. At first there was doubt as to the etiologic role of the micro-organism identified as *Spirillum minus*, since there was no history of rat bite. On closer investigation it was

found that the food ingested by the patient at the water front was exposed to rats and wild cats. The patient also had direct contact with alley cats, a fact which might be significant, since a case of rat bite fever following a cat bite has been reported.

Archives of Surgery, Chicago

48:355-422 (May) 1944

- Permeability of Lymph Vessels and Lymph Pressure. F. C. Lee.—p. 355.
Administration of Succinylsulfathiazole Before and After Hemorrhoidectomy. L. L. Leveridge.—p. 366.
*Traumatic Retroperitoneal Rupture of Duodenum: Presentation of Case and Review of Literature. M. L. Johnson.—p. 372.
Oral Administration of Diethylstilbestrol for Prostatism: Clinical Evaluation. W. Klein and B. Newman.—p. 381.
Prosthetic Restoration for Breast: Technic Using Sponge Rubber. A. M. Brown.—p. 388.
*Intravenous Administration of Fat for Nutritional Purposes: Experimental Study. L. J. Dunham and A. Brunschwig.—p. 395.
Osgood-Schlatter Disease. E. Uhry Jr.—p. 406.
Interstitial Cell Tumors of the Testis: Report of 3 New Cases. E. F. Nation, H. A. Edmonson and R. W. Hammack.—p. 415.

Retroperitoneal Rupture of Duodenum.—Johnson reports the case of a boy aged 10, who was hospitalized twenty hours after having been struck by an automobile. The right side of his abdomen and back became progressively more tender, and he vomited whenever he attempted to take water; there was no blood in the vomitus. He had a normal bowel movement the following morning and normal urination. The abdomen was slightly distended and was more rigid on the right side. The points of greatest tenderness were the right costovertebral angle, the flank and the upper right quadrant of the abdomen. There was clear transmission of the cardiac sounds over the entire right side of the abdomen (Claybrook's sign). A few borborygmi were heard. There was a small area of ecchymosis slightly to the left of the umbilicus. A roentgenogram with the patient in the upright position showed no evidence of air in the peritoneal cavity, and the intestines were normal. Laparotomy was performed. The large and small bowel, stomach and urinary bladder were examined before a small area of edema and yellowish discoloration of the parietal peritoneum just lateral to the flexion of the duodenum was investigated. The visceral peritoneum was incised and explored, the lesion being easily found on the lower later curve of the posterior part of the duodenum. Mobilization of the duodenum was essential to identification and closure of the rupture. Drainage lasted several weeks. The author found 52 cases of retroperitoneal rupture of the duodenum by blunt trauma recorded in the literature between 1916 and 1943. In 7 of these the lesion was not found at the operation. Cure was obtained in 26 cases. Whenever edema, bile staining, hematoma or emphysema occur over the retroperitoneal area of the duodenum, the surgeon must explore. The rupture must be closed, but a short circuiting operation should be done only if the closure of the rupture produces obstruction. Proper drainage of the peritoneal cavity and the retroperitoneal space is essential. The stomach or duodenal tube must be used to put the traumatized area at rest. Sulfonamide drugs should be employed intelligently. Complications may arise following the treatment, the most serious of which are peritonitis, retroperitoneal cellulitis and duodenal fistula.

Intravenous Administration of Fat for Nutritional Purposes.—Dunham and Brunschwig found that dogs on a diet of commercial dog food of low fat content exhibited changes in the characteristics (iodine and saponification numbers) of the depot fat. Dogs receiving the same diet plus intravenous infusions of emulsified fat of appreciably different quality from dog fat did not exhibit sufficient differences from the control group in alteration of the iodine and saponification numbers to indicate appreciable physiologic storage of such infused fat. Changes in melting points of the depot fats in some of the animals given infusions, however, did suggest some storage of infused fat. Protein sparing effects were not demonstrable by intravenous injection of highly emulsified fat (except in 1 of 5 dogs), but such effects did result when comparable amounts of an emulsion were administered by mouth. This further indicated lack, or extreme limitation, of utilization of intravenously administered fat. Microscopic examination of tissues taken after infusions

or fat showed increased fat in the liver, in macrophages in the spleen, in tubular epithelium of the kidneys and scattered sparsely in capillaries and macrophages in the lungs. After administration of coarser or less stable emulsions there were large fat globules in sinuses in the liver, often in the Kupffer cells and in sinuses in the spleen, increased fat in the renal tubules and glomeruli and pulmonary capillaries loaded with fat. The foreign fat diminished with the passage of time. There was an increased amount of hemosiderin in macrophages mobilized in the regions of accumulation of foreign fat especially in the spleen. The fat infusions produced severe secondary anemia, which disappeared after the infusions were discontinued. The infusions of fat were probably responsible for the deaths of 9 of 24 dogs, hence such infusions are not without danger. The surviving dogs appeared to maintain good health.

Canadian Medical Association Journal, Montreal

50:505-600 (June) 1944

- Certain Nutritional Aspects of High Extraction Wheatens Flour. I. Moran—p. 505
Job Misfits—Work Conditions. D. E. Cameron—p. 508
Arthralgia. T. G. Heston—p. 515
Investigation of Pneumothorax and Respiratory Function at Altitude. E. W. Peter on B. S. Kent, H. R. Ripley and D. R. Murphy—p. 520
Intestinal Gas Volumes at Altitude. I. W. Peterson, B. S. Kent and H. R. Ripley—p. 523
Dysenteria of Stomach. D. Teltord—p. 526
Primary Carcinoma of Liver Combined with Tuberculosis and Diabetes Mellitus. G. H. C. Joynt—p. 529
Resistance to Treatment in Early Syphilis. F. Kalz—p. 534
Discussion of Some Common Conditions Generally Unrecognized or Untreated Based on Thirty Years Clinical Experience. W. A. Bigelow—p. 536
Fungus Infection of Mouth and Throat and Nose and Ear. A. L. Yates—p. 540
The Chinese Doctor and War. R. B. McClure—p. 543
Test for Increased Coagulability of Blood. T. R. Wrough and D. W. Ruddick—p. 547
Standardization of Blood Hemoglobin Determinations. H. B. Collier—p. 550
Effect of Mercury Indigo Disulfonate on Liver Cancer of Rats. J. E. Davis—p. 553

Resistance to Treatment in Early Syphilis—Kalz stresses that resistance to therapy in syphilis is a serious problem for physician and patient and a menace from the public health point of view. He reports 3 such cases. Case 1 displayed an ocular relapse occurring after insufficient treatment and "cure" after intensified arsphenamine therapy. In case 2 a periostitis and precocious tertiary skin lesions developed while weekly injections of mapharsen 0.06 Gm were being given but responded well to intensive therapy with arsphenamine. In case 3 resistance to neoarsphenamine 0.75 Gm given once a week was observed and mucous patches and papular secondaries with spirochetes and periostitis developed. An interesting feature was the persistent seronegativity. Symptomatic cure was achieved with mapharsen 0.06 Gm twice a week. In all 3 cases therapy previously considered as adequate failed to arrest progression of the syphilitic infection while intensified arsenical therapy brought about clinical and serologic cure. The author observed numerous patients in whom mapharsen given once a week, failed to reverse the positive blood tests, while more intensive therapy with either mapharsen or arsphenamine brought about serologic reversal in a short time. If general improvement serologically or otherwise does not occur with intensified therapy and change of drug such measures as injection of foreign protein, ultraviolet ray therapy and high vitamin intake may prove of value. If not, fever therapy in conjunction with arsenotherapy may be tried. The author has not observed resistance to treatment in primary or secondary syphilis when 0.06 Gm of mapharsen was given twice a week. Mapharsen given once a week in a dose of 0.06 Gm is insufficient for the treatment of early syphilis.

Delaware State Medical Journal, Wilmington

16:51-58 (April) 1944

- New Method of Skin Grafting. M. E. Sano—p. 51

16:59-72 (May) 1944

- Operative Treatment of Cancer of Large Bowel. W. W. Babcock—p. 59
Gynecomastia. C. W. Dunn—p. 63

Endocrinology, Springfield, Ill.

34:301-352 (May) 1944

- Augmentation of Castrate Urinary Gonadotropin by Nonspecific Urinary Component. Beatrice G. Smith—p. 301
Effects of Adrenocorticotrophic Hormone on Osseous System in Normal Rats. H. Becks, Miriam E. Simpson, C. H. Li and H. M. Evans—p. 305
Antagonism of Pituitary Adrenocorticotrophic Hormone to Action of Growth Hormone on Osseous System of Hypophysectomized Rats. H. Becks, Miriam F. Simpson, W. Marx, C. H. Li and H. M. Evans—p. 311
Anatomic Effects of Thiouracil. R. H. Williams, A. R. Weinglass, G. W. Bissell and J. B. Peters—p. 317
Thymus Weight in Relation to Body Weight in Castrated and in Adrenalectomized Rats. H. C. Stoerk—p. 329
Intrasplenic Injection of Some Synthetic Estrogens and Proestrogens. A. Segaloff—p. 335
Influence of Sex Hormones on Bursa of Fabricius and Pelvis in Ring Necked Pheasant. C. M. Kirkpatrick and I. N. Andrews—p. 340
Role of Vitamins of B Complex in Estrogen Metabolism. A. Segaloff and Ann Segaloff—p. 346

Indiana State Medical Assn. Journal, Indianapolis

37:279-340 (June) 1944

- Present Day Employment of Physically Handicapped Under Federal Civil Service. V. K. Harvey—p. 277
Putting Veteran Back to Work. W. A. Smith—p. 282
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*Practical Program for Human Rehabilitation. H. A. Vonachen—p. 289
Obligations of University in Training Industrial Physicians. W. D. Gatch—p. 292
Disability Evaluation. E. D. McBride—p. 293
Value of Industrial Medical Service in Industry. V. G. Heiser—p. 295
Preventive Medicine in Industry. J. H. Joulger—p. 297
Fungus Allergy and Industrial Dermatitis. S. M. Peck—p. 304
Postwar Industrial Health Problems. R. L. Sensesich—p. 307

Program for Rehabilitation—Vonachen, medical director of the Caterpillar Tractor Company of Peoria, Ill., points out that this company realized about eighteen months ago that some of its thousands of employees now in service would return with physical handicaps. A survey was made in which each supervisor listed the jobs in his department which could be performed by employees with the handicaps listed on survey cards. With this information the personnel division, with its knowledge of "job analysis," was ready to interview the individuals and then present the applicant to the medical division for its approval of the specific job chosen. A personal interview followed, impressing on the employee the necessity for care and safety in his work. Many of the employees with physical handicaps are attending special classes given by a training school in order that they may advance in their quest of independence. This program has been successful, for the vast majority of these people have a production safety and absentee record above normal. They are paid the same rate as normal persons, they are shown no special favors and are in no way considered as accepting charity. In Caterpillar's handicapped group are only those with the loss of one or both extremities, pronounced deformities, loss of one or both eyes, loss of hearing and speech, and those with healed tuberculosis, heart disease and the like. At present Caterpillar has approximately 800 such handicapped employees, and this number is remarkable when consideration is given to the fact that it builds heavy machinery. After Caterpillar assured itself of the success of this program in its plant, it felt that the plan should be carried forward to the community. The idea was offered to the Peoria Manufacturing Association, and from this came "The Peoria Plan for Human Rehabilitation—Civilian and Military," which the author believes is the first to be established in a community with a complete working organization.

Journal of Industrial Hygiene & Toxicology, Baltimore

26:183-210 (June) 1944

- Physiologic Aspects of Traumatic Shock. J. C. Aub—p. 183
Management of Hand Injuries. H. Marble—p. 187
Determination of Concentration of Monoalkyl Ethylene Glycol Esters in Air by Infra Red Absorption Spectroscopy. C. Z. Nowrocki, I. S. Brackett and H. W. Werner—p. 193
Sensitive, Portable, Self Contained Phototube Colorimeter for Field Determination of Cyanide in Air. D. Foster and P. I. Ordung—p. 197
Survey of Medical and Sanitary Facilities in Small Industrial Establishments. Beatrice Kresky and T. Rosenthal—p. 201
Control of Silica Dust Hazard in Quartz Crystal Cutting and Grinding. A. F. C. J. 205

Public Health Reports, Washington, D. C.

59:701-732 (June 2) 1944

Strain of Typhus Rickettsiae Isolated from Brain of Wild Rat in California. M. Dorothy Beck, H. L. Bodily and Rosemary O'Donnell.—p. 701.

Prevalence of Poliomyelitis in United States in 1943. C. C. Dauer.—p. 712.

59:733-764 (June 9) 1944

Sulfarsphenamine in Therapy of Syphilis: A Comparative Study of Toxic Manifestations of Neosarsphenamine and Sulfarsphenamine. T. F. Probe, E. W. Norris, A. V. Deibert and Eleanor V. Price.—p. 733.

Radiology, Syracuse, N. Y.

42:425-530 (May) 1944

Roentgen Diagnosis of Primary Atypical Pneumonia. E. K. Lewis and F. B. Lusk.—p. 425.

*Comparative Roentgen Study of Primary Atypical and Bacterial Pneumonia. G. H. Stein and P. J. Kresky.—p. 435.

*Roentgen Study of Primary Atypical Virus Pneumonia. G. Levene and Ida A. Sterman.—p. 446.

Tomography in Region of Maxillary Sinuses. E. H. Holvey and L. M. Rosenthal.—p. 458.

Some Roentgen Aspects of Pancreatic Necrosis. G. J. Baylin and K. D. Weeks.—p. 466.

Reciprocity Law Failure in X-Ray Films. R. H. Morgan.—p. 471.

Supervoltage Roentgen Therapy of Esophageal Carcinoma. F. Buschke and S. T. Cantril.—p. 480.

Place of National Cancer Institute in Cancer Program. R. R. Spencer.—p. 493.

Roentgen Study of Primary Atypical and Bacterial Pneumonia.—Stein and Kresky state that during the twelve months from August 1942 through July 1943 2,062 cases of pneumonia were seen at the Regional Station Hospital in Sioux Falls, S. D.; 950 were bacterial pneumonias and 1,112 were primary atypical pneumonias. From a review of these cases they have come to the conclusion that any attempt to determine the probable etiology of a case of pneumonia from the roentgenogram alone is an extremely inaccurate procedure. Cases of primary atypical pneumonia may present an x-ray appearance indistinguishable from that of pneumococcal or other bacterial pneumonias, especially the early and/or resolving stages of the latter. Contrary to most descriptions in the literature, the authors have seen many cases of atypical pneumonia which did not originate in the hilar regions and extended outward but occurred as circumscribed foci in the periphery of the lung field. They have also seen primary atypical pneumonias occurring in the upper lobes with x-ray findings simulating those of tuberculosis, as mentioned by Moore and his associates. They present 19 cases which demonstrate the variations of x-ray shadows in both bacterial and primary atypical pneumonia. Any attempt to establish an etiologic diagnosis from the x-ray findings alone, without a knowledge of the clinical symptomatology, laboratory findings and clinical course, is certain to result in inaccurate diagnoses.

Roentgen Study of Primary Atypical Virus Pneumonia.—Levene and Sterman report studies in 100 consecutive cases of virus pneumonia observed in the Department of Radiology of the Massachusetts Memorial Hospitals. From a roentgenologic standpoint virus pneumonia appears to be a disease of the tracheobronchial system with secondary changes in the lungs. It produces fairly characteristic pulmonary changes. These consist of tracheobronchitis, peribronchitis, focal atelectasis, edema and emphysema. The presence of emphysema militates against total lobar atelectasis, so that uniform consolidation is infrequently observed. Roentgenograms show clearing of the lungs on the seventeenth day and a return to normal on the twenty-fifth day. Resolution progresses centripetally, the peripheral portions of the lungs being the first to clear. Roentgenologic evidence of interstitial pneumonitis and partial atelectasis may remain long after clinical cure. Since this may suggest the possibility of the development of chronic complications, particularly of bronchiectasis, it would appear to be good practice to take a roentgenogram of the chest on the day of discharge and another, where indicated, at a short interval thereafter.

South Carolina Medical Assn. Journal, Florence

40:91-108 (May) 1944

Management of Thyrotoxicosis, by Classical Iodination Method and by Use of Thiouracil. T. P. Sprunt.—p. 91.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

17:133-164 (May) 1944

Indications for and Effects of Irradiation of Pituitary Gland: Symposium. E. A. Kahn, A. C. Crooke and J. F. Bromley.—p. 133.

Value of Opaque Enema and Its Modifications. N. P. Henderson.—p. 140.

Fine Control for Kilovoltage of High Tension Generator. F. S. Stewart.—p. 149.

Energy Absorption: II. Part I. Integral Dose When Whole Body is Irradiated. W. V. Mayneord and J. R. Clarkson.—p. 151.

Four Inch Packing Nail in Lung: Case Followed for Thirteen Years. J. B. Hartley.—p. 157.

New Integrating Dosimeter for X-Ray Therapy. F. T. Farmer.—p. 160.

Calcification in Guinea Worm. J. A. Brocklebank.—p. 163.

British Medical Journal, London

1:547-580 (April 22) 1944

*Etiology of Postarsphenamine Jaundice. J. Beattie and J. Marshall.—p. 547.

What Is Psychiatry? A. Gregg.—p. 550.

Ocular Syndrome in Onchocerciasis. J. G. Scott.—p. 553.

*Nervous Complications of Infective Hepatitis. F. G. Lescher.—p. 554.

Surgical Problems in Forward Areas. G. Blackburn.—p. 556.

1:581-610 (April 29) 1944

Wartime Incidence of and Mortality from Respiratory Tuberculosis. P. Stocks and E. Lewis-Fanning.—p. 581.

Relation of Dermatology to Psychiatry. F. F. Hellier.—p. 583.

Sickness Records of Nurses in General Hospital. Joyce Wright.—p. 585.

Cyclopropane for Dental Surgery in Children. K. B. Pinson.—p. 588.

Early Secondary Repair of Complete Tears. P. Malpas.—p. 590.

Etiology of Postarsphenamine Jaundice.—Beattie and Marshall point out that apparently two types of hepatitis occur during arsenic therapy: (1) an early type, which is usually mild and appears within the first two weeks after the first injection of the drug, and (2) a late type, which may appear at a variable time after starting treatment but usually becomes obvious between the twelfth and seventeenth weeks of treatment. They are concerned with the late type, which at their clinic increased from 2 per hundred cases of early syphilis under arsenic treatment to 46 per hundred cases. Observations indicated that although syphilis and the arsenicals can produce liver damage they cannot be responsible alone for the increase in jaundice. Ruge had made the observation that in the German navy the incidence of jaundice in the syphilitic bore a relation to the incidence of infective (nonspirochetal) jaundice in the general population. The present rapid rise in the incidence of jaundice among the syphilitic in Britain also has been observed over a period when infective hepatitis was becoming increasingly common in the general population. The authors investigated the possible role of infection in 119 cases of postarsphenamine jaundice in which all the antisiphilitic treatment was administered at one clinic. The length of the incubation period and the possibility that an infective agent had been transmitted by inoculation suggested that postarsphenamine jaundice might be identical with the jaundice which occurs after the administration of human blood products or of yellow fever vaccine containing human serum. It was suggested by MacCallum early in 1943 that if transmission of the infective factor in postarsphenamine jaundice was due to inoculation of infective material contained in imperfectly sterilized syringes, then if each patient was given a syringe at the beginning of his treatment and received injections only by that syringe the transmission of infection ought to be eliminated. It was decided to give each of 10 patients with early syphilis a new and unused syringe for his exclusive use for all his injections. Such syringes and needles were washed and boiled both before and after each injection. Because of posting to units away from the command only 4 of the 10 were observed beyond one hundred and twenty days after the first treatment. No case of jaundice appeared in this group in spite of the fact that the patients were in contact for about the first fourteen days of treatment, and subsequently at least once each week, with men who later developed postarsphenamine jaundice. The authors present considerations which suggest that there is an X disease which has an incubation period of about twenty-eight to thirty days and is transmitted by contact

and a Y disease, which has an incubation period of eighty to one hundred days and is transmitted by inoculation of infective material (blood, serum or plasma). An attack of Y disease presumably confers no immunity against X disease. Evidence that an attack of X disease confers no immunity against Y disease is scanty and incomplete but is suggestive. Relapses of Y disease have been explained mostly on the grounds of an infection with X disease.

Nervous Complications of Infective Hepatitis.—According to Lescher, nervous symptoms occur occasionally during spirochetosis icterohemorrhagica and also, but even more rarely, during infective hepatitis. Meningitis is the nervous complication most commonly encountered in both diseases. Disease of the nervous parenchyma, though it does occur, is rare in both infections. The authors describe meningitis in a patient with spirochetosis icterohemorrhagica and also in 2 patients with epidemic hepatitis. In 1 of these 2 polyneuritis developed, and in the other hemiplegia, presumably due to an encephalitis, occurred within a few weeks of the attack of epidemic hepatitis. While the possibility of coincidence has been kept in mind, the probability is that the hepatitis and the nervous complications are but two phases of the same disease. This combination may be found to be not quite so uncommon as was formerly supposed, especially if the presence of latent jaundice is looked for in all cases of infective nervous disease of doubtful etiology.

1:611-642 (May 6) 1944

Control of Dust Borne Streptococcal Infection in Measles Wards. Joyce Wright, R. Cruickshank and W. Gunn.—p. 611.

*New Technique for Application of Dust Laying Oils to Hospital Bedclothes. F. C. Harwood, J. Powney and C. W. Edwards.—p. 615.

*Oiled Floors to Control Respiratory Infection: Army Experiment. P. H. R. Anderson, J. A. Buchanan and J. J. MacPartland.—p. 616.

Determination of Basal Metabolism on Outpatients. J. D. Robertson.—p. 617.

Nutritional Edema in a Vegetarian. J. MacD. Holmes.—p. 620.

Aerial Convection from Smallpox Hospitals. C. K. Millard.—p. 628.

Application of Dust-Laying Oils to Hospital Bedclothes.—According to Harwood and his associates the treatment of bedclothes with dust-laying oils for the purpose of reducing dustborne infection in hospital wards has been investigated. The application of from 3 to 7 per cent of liquid petrolatum or of technical white oil to bedclothes caused a large reduction of dustborne bacteria in the air of hospital wards. Two distinct methods of applying the oil to bedclothes were studied: (a) impregnation with oil dissolved in a volatile organic solvent, (b) impregnation with concentrated oil-in-water emulsions. Neither of these processes permits accurate control of quantities, while both methods entail a recovery process for the unused oil and would present considerable difficulty in large scale operation in a hospital laundry. The National Institute for Medical Research invited the cooperation of the British Launderers' Research Association with regard to this difficulty, and an investigation was carried out in which the use of dilute aqueous emulsions for oiling was considered in detail. As a result of this work an efficient and economic process has been evolved. It has been found possible by the use of suitable emulsifiers to oil hospital bedclothes to any required degree by means of very dilute oil-in-water emulsions. The particular advantage of the present process is that complete exhaustion of the emulsion takes place, and there is therefore no necessity for applying an oil recovery process to the used liquor. Both positively charged and negatively charged oil emulsions have been employed, either separately or in equivalent amounts. The cation active emulsifier "fixanol C" and the anion active emulsifier "teepol" have been used in the present investigation, but there is no reason why other commercial emulsifiers of similar types should not be used. The methods described are applicable on a large scale in any hospital laundry that observes a correct washing technic.

Oiled Floors to Control Respiratory Infection.—Anderson and his associates investigated the oiling of floors to see if it could be used to cut down the spread of air borne infections among soldiers in barracks. The experiment involved men in two army units, A and B, each of which was a large training center occupying one complete barracks. Oiling of floors was carried out in unit A, while, in unit B, which served as a con-

trol, the floors were untreated. The two barracks were almost identical in structure, and the men in the two lived and worked under closely comparable conditions. In unit A the wooden floors of all barrack rooms, sleeping huts, offices and lecture rooms were treated with spindle oil at regular intervals. The oil was applied in such a way as to leave an imperceptible film on the surface after thorough impregnation of the wood. Oil treatment of the floors of unit A began in November 1942. The oil was noninflammable and caused no unpleasant smell. The surface dried in about six hours. One gallon of oil was enough to treat about 1,000 square feet of floor space. Second and subsequent applications were made at intervals of about four weeks. After treatment the floor was not scrubbed but was easily kept clean by brushing or occasional moppings with a rag moistened in oil. The floors of unit B—the control unit—were left untreated, and in both units careful weekly records were kept of all men reporting sick with a respiratory infection during the seventeen weeks ended March 27, 1943. In the unit where floors were oiled the average rate of respiratory infections was 7 per thousand men, as against 38 per thousand men in the control unit. No major outbreak of respiratory infection appeared in the test unit; in the control unit an outbreak of almost epidemic proportions prevailed between the middle of February and the first week of March.

Journal of Royal Army Medical Corps, London

82:151-202 (April) 1944

Medical Aspects of Occupation of Captured Enemy Towns and Ports. W. L. Spencer-Cox.—p. 151.

Camp Siting in Malarious Districts of West Africa. C. R. Ribbands.—p. 157.

Some Experiences with a Parachute Surgical Unit. C. G. Rob.—p. 165.

Divisional Field Ambulance in Mobile Warfare. R. Johnston.—p. 168.

Importance of Failure of Concentration in Acute War Neurosis Syndrome. R. F. Tredgold.—p. 177.

Lancet, London

1:555-586 (April 29) 1944

Forward Surgery of Abdominal Wounds. W. H. Ogilvie.—p. 555.

Chronic Sinusitis with Polypi: Radical External Operation. N. Patterson.—p. 558.

Chronic Sinusitis with Polypi: Results of Patterson's Operation. S. W. G. Hargrove.—p. 560.

Regional Anesthesia for Surgery of Nose and Sinuses. H. W. Loftus Dale.—p. 562.

Treatment of Arthritis with Acid Potassium Phosphate. H. W. Crowe.—p. 563.

Vaccines and Chemotherapy in Pneumococcal Lobar Pneumonia. A. Dick.—p. 564.

Nicotinic Acid and Riboflavin in Beef Extracts and Corned Beef. R. G. Booth and E. C. Barton-Wright.—p. 565.

Revista Chilena de Pediatría, Santiago

15:169-248 (March) 1944. Partial Index

Early Cutaneous Tuberculosis in Children. A. Dabancens L.—p. 203.

*Neurologic Syndromes Due to Tuberculosis of Nervous System. R. Matte L. and R. Galecio G.—p. 213.

Food Allergy in Infants: Means for Diagnosis. W. Bustamante E.—p. 240.

Neurologic Syndromes Due to Tuberculosis of Nervous System.—Matte L. and Galecio G. report 5 cases of tuberculosis of the nervous system complicating primary pulmonary tuberculosis in infants and young children. Neurologic symptoms were present in 4 cases. The first patient exhibited symptoms of a cerebral tumor. The second and third patients presented hemiplegia as the first symptom of terminal tuberculous meningitis of ten and five days' duration respectively. The fourth patient complained of acute supraorbital neuralgia for the last four months in the course of primary pulmonary tuberculosis of nine months' duration. Necropsies showed primary pulmonary tuberculosis with cavitation and hematogenous spread of tuberculosis in all of the cases. A large cerebellar tuberculoma was found in the first case. A large cerebral tuberculoma was present in the second and third cases. Multiple cerebral tuberculomas were encountered in the fourth case. Neurologic symptoms of definite value for the diagnosis of cerebral tuberculoma did not appear in the last three cases in which tuberculoma was a necropsy finding. The cause of death in the cases reported was tuberculous leptomenigitis.

Book Notices

The Evolution of Tuberculosis as Observed During Twenty Years at Lymanhurst, Minneapolis Board of Public Welfare, 1921 to 1941. Price, \$2.50. Paper. Pp. 253, with illustrations. Minnesota Public Health Association. St. Paul, 1944.

This volume is the result of twenty years of observation and study of tuberculosis among children and young adults who as far as possible were observed to determine how the disease evolves in the bodies of persons who are infected in infancy, childhood and early adult life.

The tuberculin test, the author believes, affords the best criterion of the accomplishments in tuberculosis control over a period of years as well as the present situation.

During the first ten years stereoscopic x-ray films were made of the chests of all children, regardless of the tuberculin reaction. Never was any evidence of clinical tuberculosis found in the lungs of nonreactors. Therefore, x-ray inspection of the chest was discontinued. Moreover, single films were substituted for stereoscopic films. In 1934, after adequate trial, x-ray film on paper base was as satisfactory as on celluloid base, and therefore the paper x-ray film of the standard size was subsequently employed. It was concluded that no x-ray film, regardless of base or size, is adequate for final diagnosis. X-ray film inspection of the chest is indispensable in detecting the presence of disease which has attained macroscopic proportions, but microscopic etiology can never be determined with accuracy from the shadows of macroscopic lesions alone.

Among those who had primary tuberculosis as manifested by the tuberculin reaction, the x-ray film revealed evidence of such lesions in only about 30 per cent. The x-rays cannot be considered a substitute for the tuberculin test, but neither is the tuberculin test a substitute for the x-rays. In observing the chests of the same individuals over a period of years, it was found that the location of the lesions in those who develop chronic clinical pulmonary tuberculosis can often be determined by x-ray inspection two or three years before they cause significant symptoms or become contagious and usually before other phases of the physical examination are of any avail. Despite these findings, the physicians did not abandon palpation, percussion and auscultation, which often bring to light evidence of disease in certain areas of the lungs and in other parts of the body which do not lend themselves well to x-ray inspection.

After thirteen years of observation and study, it was decided that treatment of children with the first infection type of tuberculosis is of little avail, either immediately or remotely, and therefore it was recommended that the treatment division of the Lymanhurst School be abandoned and that the funds be diverted to more effective tuberculosis work; namely, testing as many children as possible with tuberculin, the reactors to be examined periodically after attaining adulthood, and examining their adult associates for contagious tuberculosis and breaking the contact as soon as possible. This necessitated a clinic for adults where such contacts could be examined, which was established in 1935.

Observations proved that the first infection type of tuberculosis is an extremely benign disease. Over the twenty year period no child was found to be significantly ill from this form of tuberculosis. However, it prepared the way for reinfection clinical forms of disease by causing sensitivity of the tissues to tuberculo-protein and often by providing tubercle bacilli for reinfections. Acute forms of the disease, such as meningitis, miliary disease and pneumonia, are reinfection types of tuberculosis. Nearly always when an opportunity exists one can detect the presence of primary tuberculosis before these highly destructive reinfection forms appear.

The belief that children under 5 years of age tolerate infection with tubercle bacilli poorly was not substantiated. In a group of 813 children who were found to be reactors to tuberculin between birth and the age of 5 years 11 (1.35 per cent) died of meningitis, miliary tuberculosis or tuberculous pneumonia. Eleven others as children developed extrathoracic clinical tuberculosis, of whom none died. There were 9 who later developed chronic pulmonary tuberculosis. The average age at which this occurred was 14.5 years, the youngest being 8 and the oldest 18 years. All the remaining children of this group

remained free from clinical tuberculosis throughout the period of observation.

Various methods of finding clinical cases of pulmonary tuberculosis were tried, but it is pointed out that the only entirely satisfactory method consists in testing all persons in a community with tuberculin, making x-ray films of the chests of the reactors periodically and examining those who have shadows to determine the cause of their disease.

Since the first infection type of tuberculosis does not confer dependable immunity, as does an attack of smallpox, attempts to produce immunity by other methods are based on a shaky premise and do not appear to be the proper approach to the solution of the problem. The only known satisfactory method of preventing tuberculosis in the human body consists in creating an environment free from tubercle bacilli.

This volume has added much valuable information to the literature of tuberculosis and should be read by all physicians interested in the diagnosis, treatment and prevention of the disease.

Reaction to Injury: Pathology for Students of Disease Based on the Functional and Morphological Responses of Tissues to Injurious Agents. By Wiley D. Forbes, M.D., Professor of Pathology, Duke University and Pathologist to the Duke Hospital, Durham, N. C. Cloth. Price, \$9. Pp. 797, with 332 illustrations. Baltimore: Williams & Wilkins Company, 1943.

"In its present form this book is made up of two of the four parts called for in the original plan of the work. The two parts constitute a clearly defined entity, dealing with the nature and causation of disease and with the resistive reaction: the inflammatory process and all the infectious diseases that arise therefrom." Interest centers in the individual as a whole and the old, more conventional treatment of the subject as "special" pathology has been avoided. In the preface the author explains that in order to meet the needs of continuous education and to provide opportunity for cultivation of knowledge of the basic science of disease "a specific theme has been adopted, and the materials have been selected, arranged and dealt with in such a way that the theme is always evident—disease is a matter of the abnormal outcome of a constantly changing relation between the ultimate biological unit, the cell, and its environment."

Part one, approximately one sixth of this volume, is an introduction to the study of disease. The evolution of present day concepts of the nature of disease is presented in an interesting and stimulating fashion, so devised as to give the beginner an important and all too frequently neglected historical background. The etiology and pathogenesis of disease receive particular emphasis; especially notable is the elaborate classification and discussion of pathogenic agents of the plant and animal kingdoms. According to the author's plan "the individual is considered to be capable of reacting in only three essential ways, (1) by resisting, (2) by submitting and (3) by effecting an adaptation. These three reactions, therefore, are taken to be the basis of all disease, and the recognized disease entities are considered to be the expressions of the elaboration of one of several of these reactions."

Any general plan for the formal presentation of a subject as complex as pathology must represent some sort of compromise and thus be open to certain adverse criticism. The plan followed in this work is no exception. One of the most difficult and complex parts of pathology, the inflammatory reaction, is introduced at the beginning without the preparation that a detailed study of simpler reactions, e. g. hyperemia, hemorrhage, edema or various degenerative processes, would afford. Such sharp distinctions are made between the various "parts" of pathology in this work that the student is often presented with what must seem to him a fairly complete discussion of a disease, yet some very important complication or end result of the disease may not be included because it does not fit in with the particular phase of pathology being discussed. An example of this is found in the discussion of chronic osteomyelitis, in which no hint is given of the possibility of amyloidosis as a complicating factor. Similarly, for rheumatic heart disease there is practically no discussion of its most important sequel, the heart failure which often follows long after the acute inflammatory episode, due to cicatricial changes. In spite of the evident intention to emphasize general principles and mechanisms, the

result is not all that might be desired. Too often a comparatively brief discussion of general principles is followed by the presentation of numerous disease entities which seem to be rather detached from one another and but weakly connected with the important principles which they are supposed to illustrate. Of 646 pages concerning resistive reaction to injury it seems rather disproportionate to devote but two thirds of a page to metabolism and functions in inflamed tissues, two and one-half pages to the functional significance of the elements of the inflammatory exudate, and but one page to a general discussion of repair of tissues following the inflammatory reaction. It is difficult to criticize fairly half a work without knowledge of just what the other half contains. It does appear, however, that in a "completed treatment of resistive reaction to injury" cirrhosis of the liver and asthma, for example, should be considered and, furthermore, that some general statements should be made regarding the role that hyperplasia, metaplasia, hypertrophy, regeneration and fibroplasia may have in a resistive reaction to injury.

A major defect of this volume, and one which detracts especially from a new work, lies in the selection of reference material. For example, concerning such an active subject as rheumatic fever the average date of publication for the 70 references given lies between 1924 and 1925. Less than 10 per cent of these were published within the last ten years. Similarly for the subject of experimental nephritis the most recent of the 11 references is 13 years old, antedating one of the most important advances in this field: the production of glomerulonephritis with nephrotoxin. Heffron's monograph on the pathogenesis of lobar pneumonia is referred to twice, with the implication that this represents the last word on the subject. This work is 13 years old and does not include some of the important experimental data on which our present day concepts of this disease are based. Even in the field of virus diseases, where new knowledge is increasing rapidly, the most recent of 11 reference on general considerations of virus diseases is 7 years old.

Especially commendable in this book are the portions which deal with specific granulomatous diseases, and the large sections on virus and rickettsial diseases. There are numerous illustrations of exceptional quality from the standpoint both of technical excellence and of suitability. The material is well indexed except for an occasional rather important omission, e. g. hyperemia and rheumatic fever (listed as acute rheumatic fever). The text is well printed on paper of excellent quality and the volume is attractively and sturdily bound.

It is doubtful that this work will supplant the several excellent single volume textbooks of pathology now in use; however, it presents many exceptional features including a rather complete coverage of the acute inflammatory diseases. Part I provides an excellent introduction to the study of pathology and disease in general.

Small Community Hospitals. By Henry J. Southmayd, Director, Division of Rural Hospitals, The Commonwealth Fund, and Geddes Smith, Associate, The Commonwealth Fund. Cloth. Price, \$2. Pp. 132. New York: Commonwealth Fund; London: Oxford University Press, 1944.

This is a book of importance to any one who wishes to establish a hospital of 50 beds or less. Its practical point of view will appeal to members of the medical profession and to leaders of the community who might be given some responsibility in the establishment of a small hospital. Many of the subjects discussed will apply to institutions having a larger bed capacity, but the reader is cautioned that all remarks cannot apply to hospitals having more than 50 beds. Larger institutions can expect to have the services of a qualified pathologist and a qualified radiologist to supervise the laboratories. Small institutions cannot afford adequate supervision but should nevertheless strive to maintain some professional supervision of these departments. Exception should be taken to the apparent reliance on recently graduated technicians of commercial training schools. Undoubtedly small, recently established hospitals would profit by obtaining the services of experienced technicians and preferably a technician who is registered by recognized organizations such as the Registry of Medical Technologists or the American Registry of X-Ray Technicians.

Common Skin Diseases. By A. C. Roxburgh, M.A., M.D., B.Ch., Physician in Charge of the Skin Department and Lecturer on Diseases of the Skin, St. Bartholomew's Hospital, London. Seventh edition. Fabrikoid. Price, 18s. Pp. 453, with 192 illustrations. London: H. K. Lewis & Co., Ltd., 1944.

This is the seventh edition of Roxburgh's book to appear since its first publication in 1932. That fact itself attests its value. Like the previous editions, it is a clearly written book designed for the general practitioner, with emphasis on the commoner diseases, their differential diagnosis and practical therapeutic procedures such as the practitioner is in a position to give. It is a book written from experience, rather than a compilation of abstracts from the literature, and written with a style that is readable, conversational and understandable. The type is large, the stock excellent and the photographic illustrations plentiful, large and clear. It does not pretend to be a complete treatise or reference work, yet it contains information about the newer things, as the vitamins, sulfonamides, penicillin, the influence of war on certain dermatoses and industrial dermatitis. Emphasis throughout the book is placed on the broader conception of dermatology rather than on minutiae. Within its scope it is an excellent book that fully deserves recommendation.

The War and Mental Health in England. By James M. MacIntosh, M.D., Professor of Preventive Medicine, University of Glasgow. Cloth. Price, 85 cents. Pp. 91. New York: Commonwealth Fund; London: Oxford University Press, 1944.

This monograph includes two parts. The first part contains chapters on the process of adjustment, the lonely year 1940-1941, defense, preparation and alliance 1941-1942 and the end of the beginning 1942-1943. The second part contains chapters on hospital services, voluntary organizations for mental health, professional education in mental health and some problems of the future. The author discusses the psychodynamics of normal thinking and abnormal thinking as well as many other mental aberrations deftly, simply and accurately. His proposal to educate every one regarding proper, normal and clear thinking is commended. When the war is over people must begin to busy themselves with the vocations, jobs and responsibilities they had before. When mental disease develops it must be treated as is any other disease, as quickly as possible. Education in regard to mental health according to the author should begin early in life and be continued throughout life. There are myriads of excellent ideas in this small publication.

Poliomyelitis: The Relation of Neurotropic Streptococci to Epidemic and Experimental Poliomyelitis and Poliomyelitis Virus. Diagnostic Serologic Tests and Serum Treatment. By Edward C. Rosenow, M.D., Professor of Experimental Bacteriology, University of Minnesota, Mayo Foundation, Rochester. Vol. A44 The International Bulletin for Medical Research and Public Hygiene. W. L. Colze, Editor-in-Chief. Paper. Pp. 87, with 26 illustrations. New York, Brussels & London: International Bulletin, [1944].

The author summarizes his researches over many years on the problems indicated by the title. No new evidence is presented in support of his well known views with regard to the causation of poliomyelitis, but he gives a comprehensive, painstaking and helpful account with full references of the many experiments and observations previously reported in medical journals. His hope is that the monograph "will meet the objections that have stood in the way of a general acceptance of the primary streptococcal causation of poliomyelitis and the streptococcal source of the virus."

Healthful Living for Nurses. By Harold S. Diehl, M.S., M.D., Sc.D., Professor of Preventive Medicine and Public Health and Dean of the Medical Sciences, University of Minnesota, Minneapolis, and Ruth E. Boynton, M.S., M.D., Professor of Preventive Medicine and Public Health and Director of the Student's Health Service, University of Minnesota. Cloth. Price, \$2.50. Pp. 531, with 31 illustrations. New York & London: McGraw-Hill Book Company, Inc., 1944.

This textbook on healthful living for nurses is complete, authentic and readable. It is amply documented, the references being given chapter by chapter, together with discussion suggestions. It is organized as a textbook for the obvious purpose of being used in nurses' training schools. As such, it should be of the greatest usefulness. It is liberally illustrated with charts, diagrams and drawings. It can be recommended without reservation.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CLOTTING OF MENSTRUAL BLOOD—SIGNS OF FETAL DISTRESS DURING LABOR

To the Editor:—What pathologic or physiologic changes occur in the menstrual blood when clots form? In the normal woman one does not expect to find clots. I realize that fibroid tumors and other glandular disturbances may produce clots, but I should like to know why this occurs. If meconium appears in the vaginal discharge of a patient who is having a normal labor and the fetal heart rate becomes rapid, changing from 140 to 170, what would one expect as the cause and what can be done? Such a patient was examined rectally; there was dilatation of about two fingerbreadths, there was no evidence of cord prolapse and the patient was in good condition. At this time she was given a hypodermic of vitamin K but the baby died a few hours after birth and at the time of birth showed asphyxia. I have often seen meconium stained amniotic fluid when the baby would be perfectly normal. Are there any precautions or any special procedures that should be taken when meconium stained fluid appears during the course of labor before the cervix is dilated?

M.D., Washington.

ANSWER.—Under normal conditions menstrual blood does not clot, because in passing through the endometrium it undergoes certain changes which tend to inhibit coagulation. The nature of these changes is obscure, but presumably some anticoagulant substance is added or some ingredient of the blood necessary for clotting is removed. Since blood obtained from a needle prick of the cervix does clot, it is clear that the anticoagulant mechanism resides in the endometrium. While this mechanism is adequate for the usual quantity of menstrual bleeding, it may be unable to cope with excessive hemorrhage, and under these circumstances clots develop. As a rule, therefore, clot formation in the menstrual discharge means a more rapid escape of blood from the endometrium than is normal.

The two most dependable signs of fetal distress in labor are a slow fetal heart rate (under 90) and irregularity. A rapid rate (170 and above) and meconium stained amniotic fluid are less trustworthy signs and may be present in cases in which the fetus is entirely normal. Accordingly, the latter two signs should not be regarded as indications for immediate delivery unless the cervix is fully dilated with the head on the perineum. If the cervix is not fully dilated the best results will be obtained in the long run if labor is allowed to continue. Indeed, operative intervention prior to complete dilatation is rarely justified even if unequivocal signs of fetal distress occur, because (1) the trauma imposed on the baby by such an operation often does more harm than the continuation of labor and (2) it is not right to jeopardize the mother's outlook by a traumatic operation for the sake of an infant whose chances of survival are already dubious. The administration of oxygen to the mother in such cases may be helpful. A rapid fetal heart rate is presumably the result of a temporary vagal paralysis, but the causes which bring about the latter condition are not definitely known.

AGGLUTINATION OF TYPHOID-PARATYPHOID AND DYSENTERY ORGANISMS

To the Editor:—What is the significance of a positive serum agglutination test for paratyphoid A in a titer of 1:320 in a patient who had a severe attack of diarrhea lasting forty-eight hours four months before? Could a recent immunization against typhoid and paratyphoid produce agglutinins against paratyphoid organisms? M.D., South Carolina.

ANSWER.—It is assumed that the Flexner bacillus, *Shigella paratyphenteriae*, is meant by paratyphoid A. Though normal human serum frequently agglutinates this organism to a high titer, often 1:150 and sometimes higher, a titer of 1:320 in the absence of agglutinins for Shiga's bacillus is suggestive of infection. The agglutinin titer usually drops rapidly after recovery, and its persistence for as long as four months might be taken to suggest a carrier state. However, the significance of the presence of agglutinins for dysentery bacilli, and the Flexner bacillus in particular, is questionable and should be interpreted with caution; the only completely satisfactory diagnostic test is the isolation of the bacillus from the feces.

A recent typhoid-paratyphoid immunization might produce an anamnestic rise in dysentery agglutinins but probably not to the observed titer. Though a number of strains of the Y type of Flexner's bacillus have been found to contain Salmonella anti-

gens VI and XIII (Bornstein, Siegbert; Saphra, I., and Daniels, J. B.: *J. Immunol.* 42:401 [Dec.] 1941) the occurrence in dysentery bacilli of antigens present in the typhoid bacillus and the paratyphoid A and paratyphoid B bacilli has not as yet been observed.

NEURITIS PROBABLY FROM IODIZED POPPY SEED OIL IN SPINAL CANAL

To the Editor:—Five cc. of iodized poppy seed oil was injected intrathecally and cisternally because of pain, hyperesthesia and anesthesia along the course of the 6th cervical dorsal nerve roots C₆ through C₈ on the right, with generalized weakness of the right arm. For twenty-four hours following there was severe headache, general malaise and a temperature of 102. For two weeks the patient could not lie flat because of pain in the lumbar and sacral regions. This disappeared to be followed by coccygeal neuritic pain on sneezing or on laughing heartily. Three months after injection there were severe neuritic pains in the right sacroiliac region, right hip and right posterior thigh, coming on after standing or walking and relieved by lying down. Are the pains due to the injection? Should an attempt be made now after almost four months to remove the oil? How is that done? The patient is a 35 year old man.

M.D., Rhode Island.

ANSWER.—One would have to consider the possibility of a protruded cervical disk in this patient. It is rather unusual to have a unilateral neuritis.

The coccygeal neuritic pain produced on sneezing and laughing following the injection of iodized oil suggests that the patient has probably developed some neuritis as the result of the oil. The removal of the oil is probably advisable. However, before this is done another fluoroscopy should be made with the oil of the lumbosacral area and of the cervical area either to verify or to disprove the presence of protruded disks in both locations. Following this, the iodized oil should be removed with a spinal puncture needle placed in the fourth lumbar space according to Kubik and Hampson's technic (Removal of Iodized Oil by Lumbar Puncture, *New England J. Med.* 224:455 [March 13] 1941), which consists in adjusting the table so that the volume of oil is placed about the tip of the spinal puncture needle, at which time gentle suction with the use of a syringe should effect a thorough removal. It is true that the last remaining drops of oil have to be recentered about the needle in order to remove it thoroughly. The centering of the oil about the needle is done with the aid of the fluoroscope.

IMPAIRED HEARING FROM ACOUSTIC TRAUMA

To the Editor:—A man aged 38 who claims no previous trouble with his hearing developed bilateral total deafness while working as a chipper in a shipyard. His Wassermann reaction is negative. A change of position has not improved his hearing. A neurologist states that there is no neurologic basis for his loss of hearing and that it is not psychogenic. His ear drums are normal. If chipping noises are the cause of his deafness, what is the pathogenesis? Would this be considered as an accident or an occupational disease?

J. Douglas Barry, M.D., Wilmington, Del.

ANSWER.—Impaired hearing from acoustic trauma is characterized either by a slowly progressive hearing loss beginning for the tone of 4,096 vibrations or, if there has been a sudden loud sound close to the ear, there may be an acute onset of a hearing loss. It would seem unlikely that a bilateral total deafness such as described could be the result of acoustic trauma and could be classed as occupational. The pathogenesis of deafness from acoustic trauma is an initial fatigue of the auditory nerve followed by progressive degeneration as the exposure continues.

JUNGLE ROT

To the Editor:—Will you kindly send me all the information you have on the treatment, prognosis and pathology of a disease known as jungle rot? Will you tell me something about the etiology and contagiousness of the disease?

M.D., California.

ANSWER.—The United States Army Medical Department has no information concerning the disease called "jungle rot." Perhaps the term applies to a condition known as "Barcoo rot," which is a synonym for "desert sore" or "veld sore." References to this condition may be found on page 1107 of Silt's "Diagnosis, Prevention and Treatment of Tropical Diseases" by R. P. Strong and on page 679 of the eleventh edition of "Manson's Tropical Diseases" by Philip Manson-Bahr.

From Panama comes information that the terms "jungle rot" and "tropical rot" are used by laymen to describe any sort of sore developing on the body, usually a severe form of mycotic fungus, mold or yeast infection.

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DEPARTMENT, MAY-AUGUST 1944

Titles have been listed or abstracts made of important articles in the following journals in the Current Literature Department of THE JOURNAL during the past four months. Any of the journals, except those starred, will be lent by THE JOURNAL to subscribers in continental United States and Canada and to members of the American Medical Association for a period not exceeding three days. Three journals may be borrowed at a time. No journals are available prior to 1933. Requests for periodicals should be addressed to the Library of the American Medical Association and should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Thus most of these journals are accessible to the general practitioner.

- Acta Radiologica. Stockholm
Actas Dermo-Sifilograficas. Madrid.
American Heart Journal. St. Louis.
American Journal of Clinical Pathology. Baltimore
American Journal of Digestive Diseases. Fort Wayne, Ind.
*American Journal of Diseases of Children. A. M. A., Chicago.
American Journal of Hygiene. Baltimore.
American Journal of the Medical Sciences. Philadelphia
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. Cincinnati.
American Journal of Orthopsychiatry. New York.
American Journal of Physiology. Baltimore
American Journal of Psychiatry. New York
American Journal of Public Health. New York.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Journal of Syphilis, Gonorr. and Venereal Diseases. St. Louis
American Journal of Tropical Medicine. Baltimore.
American Review of Soviet Medicine. New York.
American Review of Tuberculosis. New York.
Anales de la Cátedra de patología y clínica de la tuberculosis. Buenos Aires.
Anales del Dispensario Público nacional para Enfermedades del Aparato Digestivo. Buenos Aires.
Anesthesiology. New York.
Annals of Allergy. Minneapolis.
Annals of Internal Medicine. Lancaster, Pa.
Annals of Otolaryngology, Rhinology and Laryngology. St. Louis.
Annals of Rheumatic Diseases. London
Annals of Surgery. Philadelphia.
*Archives of Dermatology and Syphilology. A. M. A., Chicago
Archives of Disease in Childhood. London
*Archives of Internal Medicine. A. M. A., Chicago.
*Archives of Neurology and Psychiatry. A. M. A., Chicago.
*Archives of Ophthalmology. A. M. A., Chicago.
*Archives of Otolaryngology. A. M. A., Chicago
*Archives of Pathology. A. M. A., Chicago
Archives of Physical Therapy. Chicago.
*Archives of Surgery. A. M. A., Chicago
Archivos de Pediatría del Uruguay. Montevideo
Arizona Medicine. Phoenix.
Australasian and New Zealand Journal Surgery. Sydney.
Boletín del Instituto de Maternidad. Buenos Aires
Boletín de la Sociedad Cubana de Pediatría. Havana.
Bollettino Della Società Italiana di Medicina e Igiene Tropicale. Asmara.
Brain. London
British Heart Journal. London.
British Journal of Children's Diseases. Dorking, England.
British Journal of Dermatology and Syphilis. London.
British Journal of Experimental Pathology. London.
British Journal of Ophthalmology. London
British Journal of Radiology. London.
British Journal of Surgery. Bristol.
British Journal of Urology. London.
British Journal of Venereal Diseases. London
British Medical Journal. London.
Bulletin of the Johns Hopkins Hospital. Baltimore.
Bulletin of the New York Academy of Medicine. New York
Bulletin of the U. S. Army Medical Department. Washington, D.
California and Western Medicine. San Francisco.
Canadian Journal of Public Health. Toronto
Canadian Medical Association Journal. Montreal.
Cancer Research. Baltimore.
Connecticut State Medical Journal. Hartford
Delaware State Medical Journal. Wilmington
Diseases of Chest. Chicago.
Edinburgh Medical Journal.
Endocrinology. Springfield, Ill.
Experimental Medicine and Surgery. Brooklyn
Gastroenterology. Baltimore.
Hawaii Medical Journal. Honolulu
Helvetica medica acta. Basel
Illinois Medical Journal. Chicago.
Journal of Allergy. St. Louis.
Journal of the Arkansas Medical Society. Fort Smith.
Journal of Aviation Medicine. St. Paul.
Journal of Bacteriology. Baltimore.
Journal of Bone and Joint Surgery. Boston.
Journal of Clinical Endocrinology. Springfield, Ill.
Journal of Experimental Medicine. New York.
Journal of the Florida Medical Association. Jacksonville.
Journal of Immunology. Baltimore.
Journal of the Indiana State Medical Association. Indianapolis.
Journal of Industrial Hygiene and Toxicology. Baltimore.
Journal of Infectious Diseases. Chicago.
Journal of International College of Surgeons. Chicago.
Journal of the Iowa State Medical Society. Des Moines.
Journal of the Kansas Medical Society. Topeka.
Journal of Laboratory and Clinical Medicine. St. Louis.
Journal-Lancet. Minneapolis.
Journal of the Maine Medical Association. Portland.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of the Medical Society of New Jersey. Trenton.
Journal of the Michigan State Medical Society. Lansing.
Journal of the Missouri State Medical Association. St. Louis.
Journal of the Mount Sinai Hospital. New York.
Journal of the National Cancer Institute. Washington, D. C.
Journal National Malaria Society. Tallahassee, Fla.
Journal of Nervous and Mental Disease. New York.
Journal of Neuropathology and Experimental Neurology. Baltimore.
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Journal of Neurosurgery. Springfield, Ill.
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Journal of Oral Surgery. Chicago.
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Journal of Royal Naval Medical Service. London.
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Münchener medizinische Wochenschrift. Munich
Nebraska State Medical Journal. Lincoln.
New England Journal of Medicine. Boston.
New Orleans Medical and Surgical Journal.
New York State Journal of Medicine. New York.
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Psychosomatic Medicine. Baltimore
Public Health Reports. Washington, D. C.
Puerto Rico J. Public Health & Tropical Medicine. San Juan.

*Cannot be lent.

- Quarterly Journal of Medicine. Oxford.
Quarterly Journal of Studies on Alcohol. New Haven, Conn.
Radiology. Syracuse, N. Y.
Review of Gastroenterology. New York.
Revista de la Asociación Médica Argentina. Buenos Aires.
Revista Chilena de Pediatría. Santiago.
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Wisconsin Medical Journal. Madison.
Yale Journal of Biology and Medicine. New Haven.

SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "OS," Organization Section; "ab," abstracts; the star (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." State board examinations are entered under the general heading State Board Reports, and not under the names of the individual states. Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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As.—Association *Pharm.—Pharmaceutical*
Coll.—College *Phys.—Physicians*
Conf.—Conference *Rev.—Revision*
Cong.—Congress *Ry.—Railways*
Conv.—Convention *Soc.—Society*
Dist.—District *Surg.—Surgery*
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